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HOME SAFETY Review

VOL. 15, NO. 3 — MARCH 1958

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—the Peoples Gas Light & Coke Co.

A Peoples Gas home service representative instructs a customer in the proper and safe use of her new gas range.

Safety—from industry to the consumer—about electricity, gas equipment, fabrics.

See pages 3 through 9.

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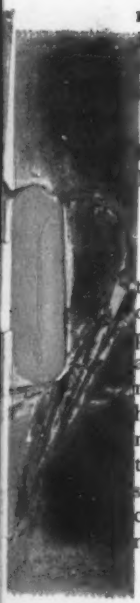

The Home Safety Conference is the meeting point for representatives of national organizations conducting programs that include prevention of accidents in the home. It officially represents National Safety Council home safety service subscriber-members. Conference officers (with the exception of the staff secretary) serve voluntarily without pay as the council's safety officers and planning board for home safety program.

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HOME SAFETY REVIEW

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ELECTRICITY— Servant or Master?

By A. Carl Bredahl

ELECTRICITY IS ONE of our most helpful servants, but when used carelessly, it can be our most potent enemy. Pause and think for a moment the many advantages which electricity gives us—transportation, light, entertainment, and ever so many labor-saving devices — things which all add up to a better way of life.

Thousands of years ago the ancients knew of basic electricity, and through the years many men have worked on gathering knowledge of this basic and powerful source of energy. In the past few generations men such as Franklin, Henry, Edison, and Westinghouse have cleared the way for our present use of electricity. But these men did not devote their life's work for us to misuse electricity as we do.

Every day one reads or hears about accidents which have occurred in homes. Of these accidents many are a direct result of the misuse of our humble servant: electricity. In fact, 1 out of 8 fires in the home is of electrical origin. Most of us are rather indifferent towards electricity. We use it often and give very little thought to how it gets to us.

Electricity can be compared with our automobiles. It is a wonderful convenience when it is kept under control, but, if it is out of control, it turns into a ravaging and destructive force. Most of us keep a rather close check on our cars, and, if something is wrong, we have it repaired, but how many of us bother to have the routes checked over which electricity flows from where the electric company brings it into the house?

We overlook the possibility that our wiring may be in need of repair or that it might be inadequate to carry the loads placed on it. To go even further, we often thoughtlessly disregard such well-known safety precautions as overloading convenience outlets, placing a penny or some other metal disk behind a fuse, manipulating electrical appliances while we stand in water, or tinkering with appliances such as television sets about which the average man knows little or nothing. The list could stretch on and on.

There are many organizations which devote a lot of time and money to an effort to make the public "safety conscious," and their efforts show remarkable results. But it is a never-ending job to teach our citizens the basic safety rules which they should follow, and it is an even harder job to keep reminding them of these precautions. It takes but one careless moment for an accident to occur. Therefore, it is no wonder some of us fear electricity. We don't understand enough about it, and we think nothing about mistreating it. Electricity is a power not to be feared so long as we keep it under control. Water or fire, out of control, spells havoc for man; when kept within bounds they are servants, but they must be mastered—and likewise electricity.

Keeping electricity under control is no great problem. To begin with, our home wiring should be up-to-date and capable of handling the load which our modern home requires. According to a survey made in 1954, of 45 million homes, only 34 million were adequately wired. To be adequately wired, a home should have 3 wires entering from the outside, and the average home should have a service capacity of 100 amperes. From the three-wire main there should be sufficient branch circuits to serve the present needs of the home and also enough spare circuits to take care of new electrical additions. Convenience outlets should be plentiful—1 for every 12 feet of wall space in the average room. Skimping on an adequacy of convenience outlets leads to the use of "octopus" outlets—those plug-in devices that are the cause of many of our wiring troubles.

After the home has been properly wired, a periodic check of the electrical "highways" should be made to ensure safety.

There are many reasons for having adequate wiring in the home other than the obvious safety reasons. Adequate wiring saves money. Over a period of years, the initial cost of bringing wiring up to date is offset by the improved efficiency of appliances and by eliminating the need for makeshift improvements in order to accommodate each new appliance which the homemaker might purchase.

With adequate wiring appliances will operate at peak efficiency and thereby will save time. A poor, or inadequate, wiring system causes appliances to "slow down" in their operation. If your wiring is adequate, electricity will flow to each appliance at a uniform rate and will not be interrupted by the momentary starting of other appliances.

With the addition of convenience outlets at proper intervals, you will be able to arrange and rearrange furniture without having an annoying lack of outlets for lamps and appliances. Unsightly and sometimes dangerous extension cords will be necessary, and someday one may wish to sell his present home. Adequate wiring increases the value, safety, and desirability of any home.

A. CARL BREDAHL is presently the director of technical services of the General Advertising Department for Westinghouse Electric Corporation, Pittsburgh, Pa. He previously headed the Westinghouse Better Homes Bureau and is one of the leading authorities on residential electrification with over 30 years experience in the building construction field. Mr. Bredahl is a registered professional engineer, having studied electrical engineering at Columbia University, and is a member of the American Institute of Electrical Engineers. He is the author of a new book on residential wiring *Manual for Home and Farm Wiring* and also has written such material as the *Home Wiring Handbook* and other Westinghouse literature.

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—Photos by the Peoples Gas Light & Coke Co.

A range undergoing tests in the Peoples Gas laboratory in Chicago.

CONSUMER EDUCATION AND PROTECTION

By Jack H. Cornelius
Manager Community Relations
The Peoples Gas, Light & Coke Co.
Chicago, Ill.

IN A STORY ON[1] safety in a magazine that crossed my desk recently there appeared this quote, "Unguarded machines cause less than 5 per cent of the total accidents; unguarded minds cause 95 per cent."

At Peoples Gas we are not quite sure of the accuracy of these percentages, but to be on the safe side we have developed a full program in both areas.

The appliances on our lines must be soundly engineered and properly constructed to utilize our fuel safely. The gas industry, as a whole, long has recognized this basic fact and as a result has for many years conducted a program of laboratory testing of gas-fired appliances. This laboratory testing program, conducted by the American Gas Association, has led to the development of a set of performance requirements to be met before the appliance can be granted a seal of approval. The gas appliance manufacturers fully approve, in fact, financially support this program and work closely with industry testing people in developing new features to be incorporated into modern gas appliances. The industry has been responsible for the attachment (by manufacturers) of clear, simple, operating and lighting instructions to all automatically controlled gas appliances.

Peoples Gas also has a laboratory in which it tests appliances distributed in the Chicago area. This may seem like gross duplication since we test appliances previously approved by the American Gas Association's industrywide laboratories, but I hasten to point out that the AGA tests hand-tooled prototype models while we test production models. Often there is a considerable difference. Then, too, Chicago has some problems such as the large number of small, stove-heated dwelling units which are peculiar to this area and that make it desirable for us to have more rigid safety requirements. Our testing people also help find practical solutions to service problems which may arise as a result of a serviceman's or an engineer's visiting a customer's premises. Testing also closely observes the performance in the field of newly developed equipment. At present they are conducting tests of gas air-conditioning installations.

Another way in which we attempt to upgrade the quality of appliances attached to our distribution system is through a dealer education program in which we urge the dealer to try to sell a better equipped gas appliance. Our sales division has a dealer contact section to administer this program.

In order to get top efficiency from a well designed appliance it must be properly installed and adjusted. Peoples Gas makes very few installations of appliances. Recognizing the need for improving the knowledge and ability of outside service personnel who install and adjust appliances the company has established a training program at one of our public schools, the Washburne Trade School, where plumbers and steamfitters are taught proper installation practices. In addition, our sales engineers cooperate with heating contractors in advising them on proper space heating equipment installation methods. We inspect all completed water heater and space heater installations to make certain they meet safety standards and that they are operating efficiently.

So you see, we do recognize the importance of the machine *and men* in any safety program, and we have developed this comprehensive plan to insure a minimum amount of trouble due to appliance failure.

Our late president, George F. Mitchell, often said, "Wherever you have concentrated energy, you han-

[1]This is a talk "Consumer Education and Protection" presented by Mr. Cornelius, October 24, 1957, at a symposium "Industrial Approaches to Home Safety" at a Home Safety Session of the 45th National Safety Congress, in Chicago, Ill.

dle it with respect." The gas industry has long recognized the truth of this statement and has developed programs to implement Mr. Mitchell's philosophy. This problem is not peculiar to the gas industry alone. The electric industry faces the same situation. Each industry has of necessity recognized its responsibilities and has developed educational programs to teach customers to handle these forms of concentrated energy with respect.

Natural gas in its original state has no taste, no smell, nor can you see it. In order that uncontrolled gas can easily be detected we have added a very unpleasant odor in the form of a specially developed chemical, and we have made it just as "stinky" as we possibly could and still have it smell like the manufactured gas we remember so well.

Then too our customers receive, from several sources, instructions on how best to use their gas burning appliances. It starts when the salesman is making a sale. Part of his pitch is what the appliance will do and how it does it. This necessarily entails an explanation of proper operation of the gas appliance. If after the customer has received delivery of the appliance he or she does not understand fully its operation, one of our home service representatives will, upon request, visit the customer's premises and give on-the-spot instructions.

A customer interviewer participates in a refresher course on appliance adjustment and operation at the Fitters School.

Another source of customer education is the serviceman's call. Thousands of such visits to customers' premises are made each working day of the year. In many instances the serviceman is called on to explain to the customer what has gone wrong and what should be done in the future to ensure efficient operation of the appliance.

For example, if the serviceman finds excessive grease on the range burner or in the broiler, he will point out this is a potential fire hazard; then he will instruct the customer in the best way to clean the burner and how easily to keep it clean.

Our public contact employees, those who talk with customers coming into our offices and those who answer telephone calls to the company, have all been instructed in safety measures to be observed in appliance operation. As a matter of fact, each of these persons has undergone a course of training in our Fitters School, originally established to train our servicemen. Each newly appointed customer-contact employee is given a course in appliance operation and in safety precautions to be observed, and each year all customer-contact employees are sent back to school for a refresher course. During the war, when we had a shortage of servicemen, our customer-contact employees advised customers how they could correct many of the minor difficulties affecting the operation of an appliance.

Pamphlets have been developed which instruct the customer in the safe, economical operation of the gas burning appliances. Here are some examples of booklets available at Gas Company offices:

Helpful Information on Gas Heating.
You Can Have More Hot Water Faster for Less Money.
The Gas Water Heater Installation Guide.
Practical Chimney Construction.

We also maintain at our main office location a customer display floor where we have on exhibit examples of proper installation of gas appliances and heating systems; where we have diagrammed and constructed models showing proper insulation of buildings, the proper construction and lining of chimneys, the correct venting of gas appliances, and all the other safety features that lead to respectful handling of this concentrated energy. There are on duty at all times sales engineers to answer the questions about gas appliance installation from customers, contractors, and builders.

When a customer plans remodeling or adding a new gas appliance, he or the plumber can call the Gas Company and ask for an experienced inspector to advise on how the piping job should be done. One of our supervisory people will visit the premises in question and outline in detail what steps to follow and the pipe sizes to use to ensure safe, efficient operation.

In furthering our program of consumer education we periodically furnish to the daily and neighborhood newspapers feature articles describing best practices to be followed when using gas appliances and instructions for proper maintenance to keep the appliances operating at peak efficiency.

Another phase of our consumer education program, which also is part of our sales promotion effort, is that of conducting cooking schools for our customers and the placing of gas ranges in Chicago schools to teach high school age girls how properly to use these appliances. This teaching includes operation and care of the equipment, safety precautions to be observed, and helpful hints in the efficient use of the appliance.

This then is the program we have developed to teach the public that properly controlled gas is a wonderful servant.

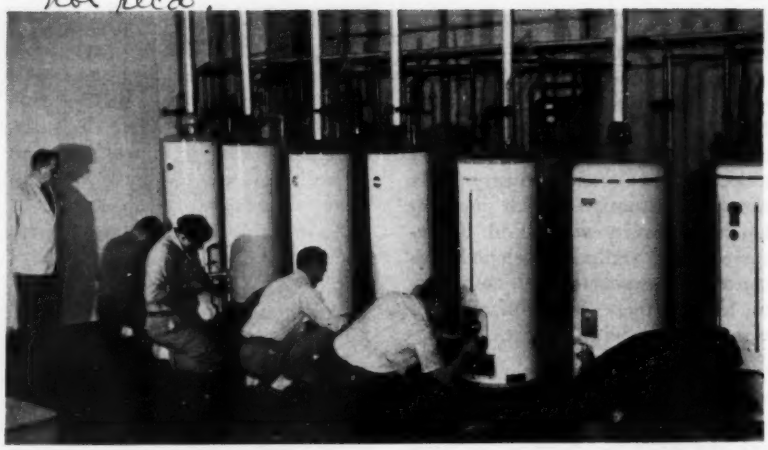
I have already covered in this presentation our program to make the appliances safe and our efforts to educate the public in the proper use of those appliances and of the fuel. To complete our safety picture we followup these two programs with one of inspection—to ensure our teachings' being heeded.

First let me point out that we cooperate fully with the municipal au-

thorities—not only in the development of housing and building code regulation of gas appliance installations, but also, because of our frequent contacts with our customers, in helping secure compliance with the codes.

Some of these regulations have to do with proper venting of appliances, restrictions on location of various appliances, room sizes, materials to be used for piping, etc. Because we make literally hundreds of thousands of visits to customers' premises each year, our people are able to discover and report installations which are not in compliance with safety requirements. We notify the customer he is in violation of a given ordinance, tell him what must be done to correct the violation, and, after a reasonable period of time has elapsed, inspect the premises to ensure compliance with the statutes. The offending appliance is disconnected and left disconnected until the violation is corrected.

All our people who visit customer premises (these include servicemen, meter readers, and inspectors) are trained to recognize these violations. Just consider one phase of our customer premises operations, that of changing meters. We do a volume of 100,000 each year because we adhere to the requirements of the Illinois Commerce Commission in changing a meter each 10 years to ensure its accurate registration. By the way, we find, of the few meters not accurate within the allowed range, most of them register slightly in favor of the customer. In addition, meter readers read our more than one million meters six times a year, and our servicemen average about two thousand calls a day on customer premises.



Prospective servicemen learn about automatic gas water heaters in the Fitters School established to give such training.

We are careful to set meters in locations where they can easily be reached and read, and we insist on the customer's maintaining easy access to the meter location so our service people will not have difficulties.

In addition we have a program of renewing service pipes in areas where needed. In the areas of substandard housing, where most of the breaking up of large apartments into small takes place, we make a house-to-house inspection looking for house piping installations which do not meet safety requirements.

How effective has this program been? It is difficult accurately to measure the results of such a program, but we know we are on the right track when we read the following report of the National Board of Fire Underwriters for the decade 1946 through 1955. Of the 19 categories of causes of fires, gas ranks fourteenth (see table).

These figures indicate our program has resulted in some measure of success, but we will not relax our vigilance or curtail our program. Safety is a full-time, unrelenting job. We shall continue to work in the fields of appliance design and installation, to educate our users in safe practices, and to continue our inspection program to ensure that all our customers can handle this concentrated energy called gas—and handle it with respect.

FIRES IN U. S. RESULTING FROM KNOWN CAUSES
(As reported to the National Board of Fire Underwriters)
For the decade Jan. 1, 1946-Dec. 31, 1955

Causes	Claims No.	Claims %	Property Loss $	Property Loss %
1. Matches, smoking	669,111	26.36	499,553,551	16.12
2. Misuse of electricity	372,745	14.69	613,495,900	19.80
3. Lightning	249,986	9.85	181,765,004	5.87
4. Petroleum and its products	177,515	6.99	273,279,784	8.82
5. Stoves, furnaces, boilers and their pipes	171,464	6.76	246,596,251	7.96
6. Exposure (fire originating off premises)	163,288	6.43	284,294,591	9.17
7. Ignition of hot grease, etc.	110,606	4.36	54,166,808	1.75
8. Overheated or defective chimneys, flues, etc.	108,662	4.28	133,087,942	4.29
9. Miscellaneous; cause known but not classified	88,663	3.49	133,764,632	4.32
10. Hot ashes and coals; open fires	88,459	3.48	90,388,559	2.92
11. Open lights	73,032	2.88	73,432,821	2.37
12. Rubbish and litter	63,278	2.49	66,423,611	2.14
13. Spontaneous combustion	44,257	1.74	144,403,323	4.66
14. Gas; natural and artificial	43,894	1.73	83,955,023	2.71
15. Sparks on roof	41,426	1.63	49,235,317	1.59
16. Friction, sparks from running machinery	23,730	0.94	76,445,703	2.47
17. Sparks arising from combustion	22,622	0.89	42,587,209	1.37
18. Explosions	21,925	0.86	48,604,321	1.57
19. Fireworks, balloons, etc.	3,693	0.15	3,235,344	0.10
	2,538,356	100.00	3,098,715,694	100.00

NOTE: These totals are for reported fires where the cause is ascertainable, excluding incendiarism, and do not represent either the total number of fires or the total property loss in the U. S. Excluded are all unreported losses as well as fires resulting from unknown causes. It is estimated that the aggregate property loss in the U. S. during this decade was approximately $7.5 billion.

FIBERS—FABRICS—FIRE

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By Arthur H. Christian
Corporate Safety Engineer
American Viscose Corporation
Philadelphia, Pa.

FROM THE STANDPOINT[1] of a safety engineer's interest in accident prevention, an important and ever-present hazard that must be combated both on and off the job is the flammability of fabrics. Through the ages man has maintained a persistent search for some means of combating fire, for it has destroyed some of his most priceless possessions and at times has left him destitute, causing loss of life, home, and business. While great strides have been made in the last few decades in controlling fire on many fronts, of the many fire-resistant materials discovered and perfected by man, none has yet been found that is completely suitable for protection in the form of clothing. However, with the advent of manmade fibers, one objective of scientists has been to perfect the "ideal fiber" which would include desirable fire-resistant qualities. In some respects this has been accomplished to the extent of developing certain fibers with much greater resistance to fire than most natural fibers.

A little over a decade ago the problem of dangerously flammable clothing suddenly gained nationwide attention. In Washington, D. C., 3 small boys were burned to death and 7 others seriously injured when the long-napped imitation chaps of their cowboy suits caught fire as they played around some burning brush. Later 3 other little boys died and 20-odd were badly burned when wearing the same type suits.

In Kansas City a stenographer was severely burned when, in striking a match to light a gas stove, the head flew off and ignited the angora-type sweater with long, fuzzy nap which she was wearing. The burning was so rapid and intense that she could not beat out the flames, nor could the sweater be removed with the help of her sister and brother-in-law (both of whom were also quite badly burned) before serious injury had been done. Not only was she disfigured, but the accident will hinder her full use of her hands for the rest of her life.

A young University of Texas coed, whose flimsy dress caught fire when it brushed against a lighted candle during a sorority initiation and burned rapidly, died of her burns the following morning.

In New York, N. Y., a young debutante suffered serious burns when a white tulle dress was ignited at a coming out dance at a popular hotel.

There are numerous reports of serious burns as a result of a chenille lounging robe's being ignited. Each of these examples had one thing in common. The air had ready access to the fibers of fine-sized yarn so that, once they became ignited, they burned with appalling rapidity.

To delve a little further into this past history, the problem of highly flammable fabrics was first highlighted in 1944 when a California mother bought a tufted chenille dressing gown for her young daughter and discovered when she opened it at home that it bore a tag "Warning—Keep Away from Open Flames." She returned the dressing gown indignantly, and her husband, a State assemblyman, promptly introduced a bill into the State Legislature to forbid the sale in California of dangerously flammable fabrics. The following March the same bill was introduced in Congress by a California representative, Leroy Johnson.

Although no accurate way had been developed at that time to separate highly flammable from slow burning fabrics, fortunately the American Association of Textile Chemists and Colorists already had a committee working on flameproofing and a method of testing treated fabrics. Its chairman, the late Dr. Lewis A. Olney of the Lowell Textile Institute, promptly appointed a subcommittee to devise a reliable test method and apparatus to measure the rate of burning. The committee had hardly started its work when the fatalities from the cowboy suits mentioned above occurred right in Washington. Needless to say, this aroused Congress. To prevent the possible enactment of unwise and perhaps unworkable legislation, the Washington office of the National Retail Dry Goods Association arranged for a conference of Representative Johnson and the AATCC subcommittee. The committee demonstrated the tester it was working on and explained that it would take several

[1]This is a speech "Fibers—Fabrics—Fire" given by Mr. Christian, March 20, 1957, at the Fire Protection Session of the 27th Annual Convention and Exposition of the Greater New York Safety Council in New York, N. Y.

more months to check its reliability. As it turned out, many changes had to be made in the test method before it could be depended upon as a practical standard.

Congress postponed action, but California's legislature did not. Their bill, after much discussion, was passed, and California thus became the first State to outlaw dangerously flammable clothing.

A bill was introduced in the Pennsylvania Legislature which was not at all like the California law. It became quite obvious that unless some action could be taken to bring uniformity into the situation, only confusion could be the result. Manufacturers of fabrics might be confronted with many different State regulations. Realistic Federal legislation obviously would overcome the possibility of having a dozen or more various State and local regulations outlawing flammable fabrics and creating confusion rather than standardization.

Flammable Fabrics Act

As a result of excellent work and cooperation by a number of associations and other interested parties, a suitable test method was developed that yielded reasonably consistent results. After it was endorsed by a satisfactory majority of producers and consumers, it became a commercial standard. The Federal Flammable Fabrics Act was eventually passed and became effective July 1, 1954. Basically it prohibits sale of any article or fabric that is so highly flammable as to be dangerous when worn by individuals. There has been excellent cooperation on the part of enlightened industry, and the "torch" fabrics that first flared into notoriety a little over a decade ago seem to be a thing of the past.

We are far from a total solution to this rather complicated problem, however, which is merely one among the many in our complex civilization. It is most encouraging to know that work on a number of fronts continues. Typical is an experimental study conducted at the Aero Medical Laboratory of the Air Force at the Wright-Patterson Air Force Base in Ohio. The results were reported to the American College of Surgeons.

Scientific experiments with *fire, fabrics,* and *rats* have proven that what a person is wearing when he encounters intense searing heat has a great deal to do with the severity of resulting burns. Certainly it is useful information to have whether for industrial, military, or civilian application.

As the experimenters pointed out, two types of burns are common in war as well as in civilian disasters and industrial accidents: "burns in which the individual's clothing is heated to the ignition or melting point, and flash burns in which the individual is exposed to a source of intense radiant energy for brief periods of time." This particular study employed a technique which attempted to simulate the flash burn commonly encountered in gasoline or industrial explosions.

Burns in which clothing is heated to the ignition or to the melting point were common enough in war as well as in civilian and industrial experience; for example, this type of burn was seen in large scale in the circus disaster at Hartford, Conn., and the night club fire in Boston, Mass.

They point out it is obvious that clothing may either contribute to the severity of the burn by supporting combustion or it may by virtue of its weave, color, or fabric-type offer some degree of protection. At Pearl Harbor, for example, it was noted that "only exposed surfaces were burned—even an undershirt or shorts appeared sufficient to prevent areas covered from being burned."

Their experiments with radiant heat showed that the most important thing from the standpoint of protection was the thickness of the fabric. Heavier cloth gave more protection than lightweight materials. Previous objective tests had shown that multiple layers of fabrics offered more protection than did single layers. These are points well worth remembering when prescribing industrial work clothing where a possibility of a flash fire exists.

Second in importance was the relative ability of the actual fabrics used to conduct heat away from the initial area of exposure; for instance, certain nonflameproofed cottons may give less protection than no fabrics at all. In these particular tests, wool gave the most protection; heavy synthetic fibers such as nylon and Dacron were next; then came heavy synthetics combined with cotton, cotton alone but treated chemically to make it flame "retardant," lightweight synthetics, and untreated cotton.

Third in importance was color of the fabric. Light colors and colorless fabrics produced less severe burns to the flesh beneath than dark colors. This is attributed to the higher ability of light colored fabric to reflect radiant energy away from itself.

Melting Heat and Burns

Experimenting with melting heat, this group found that pure synthetic fibers (with rayon excepted) simply melted. They would not support combustion, nor would wool and treated cotton catch on fire. In these experiments no burns resulted, but with cotton mixed with synthetics there were burns, but "burns which were never extensive and healed promptly."

As expected, the fabrics which did ignite and burn, burned much more freely when they were wrapped loosely which permitted free circulation of air under the burning cloth. These experimental results agreed closely with similar clinical studies in a large emergency hospital and vividly illustrate that loose fitting garments are far more dangerous than tight when ignited, and resultant burns are many times as severe.

* * * * *

* * * there are marked differences in the behavior of fabrics exposed to great radiant energy. In the event of atomic war, each of us will have a very personal interest in what protection we might expect from our clothing. Bulletins issued by Civilian Defense authorities should be well heeded.

Another area of great activity is flameproofing. There is considerable

confusion over nomenclature, and by "flameproofing" I mean a treatment which prevents self-combustion of a fabric once the igniting source has been removed. "Fireproofing," of course, implies total resistance to destruction by fire, and "flame-resistance" merely means that it will not burn too rapidly. One characteristic of cellulosic material which must be taken into consideration is its tendency to be consumed after the flame has been extinguished by a glowing, nonflaming type of combustion usually called afterglow.

An *ideal* flameproofing agent would be one which could be easily applied to a fabric, preferably in a finished form ready for use, and one which would render that fabric permanently flameproofed (including elimination of afterglow) without appreciably altering the fabric characteristics for consumers' use. From a practical standpoint there are many problems such as cost, ease of application, excessive change in the properties of the fabric which include increase of weight, poor hand, decrease in tensile strength, permanency of the treatment, permeability of the fabric for both air and vapor transmission, compatability with other fabric treatments such as dyeing, and dermatitis problems.

Flameproofing Problems Not Yet Solved

While there are many practical flameproofing agents for specific purposes (for example some are described in the National Safety Council's Data Sheet D-220), the overall problem is far from solved. Although there are many practical applications, the various mechanisms of flameproofing are not fully understood. This, of course, comes as no great surprise because the medical profession as yet has no complete understanding of the mechanisms of such everyday actions as seeing and hearing and certainly there are many practical treatments for these two important functions!

Many empirical theories have been advanced to explain how a cellulosic substrate is made flame-retardant. Both physical and chemical mechanisms have been proposed. For example, the first of the physical theories suggests that the flame-retardant is decomposed by heat to form a glasslike coating on the individual fibers which in turn serves as a barrier between the cellulose, the source of the flame, and the oxygen in the air. The highly flammable tars of decomposition become entrapped in this solid foam and are not available for further combustion reaction.

A second physical theory implies that some flame-retardants for cellulose function by evolving large quantities of a relatively nonflammable, inert gas which serves to dilute the highly combustible atmosphere surrounding the thermally decomposing substrate and thus to reduce its flammability.

A third physical theory proposes that the mechanism of flame-retardancy may be related to the absorption of large quantities of heat by the retardant or to physical changes in its internal structure. It is admitted that this mode of action is infrequent.

Two chemical theories have been proposed. The first utilizes the concept of hydrogen, and the second is explained by the catalytic dehydration of cellulose to carbon and water.

Through the integrated cooperation of such diversified interests as industry, universities, and governmental laboratories amazing progress has been made recently in the field of flame-retardancy. It is felt that the theory of flame-retardancy may soon be elucidated as well as how the property of flame-retardancy can be built into a chemical molecule. While this is all very good groundwork and certainly necessary for a complete solution of the long-range problem, there is a great difference between theory and practice.

The Federal legislation discussed above has stimulated interest in the burning characteristics of various natural and manmade fibers during the past several years. Investigational work has served to emphasize that there are a number of factors other than fiber type which affect the burning rate of fabric. Included in these are construction, fiber size, chemical finishes, mechanical finishings such as napping, and obviously the position of the fabric when it is ignited.

With regard to construction, any fabrication that results in bulking and opening of the fibers (which furnishes a great excess of air around the fibers) may increase the rate of burning. For example, when a fabric has been napped, there may be a tendency for the nap to burn more rapidly than the base fabric; commonly this is called flash burning.

Finishing Materials

Certain oils and other finishes may cause fabrics to support combustion even though the fiber per se is not combustible. Some of these finishing materials may themselves be flammable, or they may release oxygen on ignition thereby speeding the burning rate.

Actually some flame-retardants can increase the flammability of some synthetics instead of decreasing it; for example, certain laboratory tests show that a combination fabric of nylon and glass fiber burns when ignited although neither the nylon nor the glass fiber would propagate a flame when tested alone. Similarly, a combination fabric of nylon and asbestos also burns. An explanation offered is that the powdery, nonflammable, finishing material thickens molten drops of the fiber polymer, and, instead of dropping off as formerly, they cling to the fabric because of increased viscosity. Additional material is then melted and ignited, and thus the flame is propagated to adjacent fabric.

It is readily obvious that we have as yet not reached the complete solution to the problem of fire and its relation to fabrics. Encouraging progress has been made in that we now have available, in addition to flameproofing treatments for naturally occurring fibers, manmade ones which have superior flame-resistant characteristics. From an accident prevention viewpoint, however, common everyday fire hazards have not been eliminated to the point that the hazards of fire can be ignored.

home safety in San Jose

By Dwight M. Bissell, M.D., M.S.P.H.

Health Officer
Health Department
San Jose, Calif.

In 1949 THE CITY OF[1] San Jose, Calif., established an emergency first aid station and gave the health officer responsibility for administering it. Records were a necessary part of its operation. As we looked at the reasons that caused people to seek service, we were struck by the number of persons who had suffered accidental injuries. We were aware of the frequency of automobile accidents and of industrial accidents, but somehow we had never realized that such a large number of accidental injuries could occur at home.

We looked at the death records and found that year after year in our city of slightly less than 100,000 population 13 to 15 deaths were registered as due to home accidents. Few people had been interested in the fact that accidents were the third cause of death in our city, as they are in many other cities in California. We had a chapter of the National Safety Council, but it was interested primarily in industrial and traffic accidents. We knew that the National Safety Council was interested in home accidents, and we felt that the local chapter would be a natural ally in our concern about them.

Our health department personnel, numbering about 70, always work well together after we arrive at a group decision and agree on a program. We talked the home accident problem over at our division chiefs' meeting and decided to find out the degree of interest among those who would be working on this new problem. It seemed logical that nurses who visit families in their homes would be able to do some work in prevention of home accidents; that sanitarians who deal with housing and check on environmental sanitation of the home would be able to assist, too. Health education and vital statistics services would certainly be essential, and all of our epidemiological and administrative skills would be needed for a full-fledged attack.

When the subject was first presented to the public health nursing division, one nurse said, "Everyone has home accidents so what can we do about it, and why worry about it?" This comment gave us an opportunity to suggest that each of us record the accidental injuries occurring in our homes for a week or two to find out what really happens. Before the recordkeeping period was over, there was much discussion about the things that cause home accidents and about our unsafe environment. We began to hear comments about the number of home accidents. Environmental hazards seemed to be lurking everywhere. The experience produced convincing evidence that home accidents happen to all of us and that there are things one can do to prevent them. Most of our injuries, incidentally, were cuts and falls.

Community Participation

We have never tried to solve public health problems alone in San Jose. We believe that everyone who is interested has a right to share in planning and activities.

Each of us began to search for individuals or groups interested in home accidents. A number of insurance companies, we discovered, had a vital interest, and some of them were already active in this field. Some 30 industries were concerned, we learned by calling personnel directors together. Industry loses money every time a worker is absent from his job. He may be replaced, but the new worker is usually not as efficient as the old one. One large industry employing 3,000 or 4,000 men had a home accident prevention program "on the books." By bringing attention to that program, the industry was able to develop a more realistic one.

Another group that became interested in home accident prevention was the Apartment House Owners Association. Fewer accidents in the apartments would mean lower insurance premiums. PTA groups, welfare groups (particularly those serving old-age pensioners), and health agencies were others among a total of about 70 groups finally invited to send representatives to a meeting to discuss organization of a program to prevent accidental injuries in the home. Pediatricians naturally had a leading role, but dentists, surgeons, clergymen, and many others were also interested.

We had some doubters in this group too, but exploration of the matter convinced them of the value of preventing home accidents. In fact, one of the original opponents became the strongest supporter. He

[1]This article entitled "Home Safety in San Jose" by Dr. Bissell has been reprinted from *Public Health Reports*, vol. 73, No. 1, pp. 49-53, January 1958, published by the Public Health Service, Washington, D. C.

"sold" himself by asking questions. It was easy to sell those agencies that could see a financial gain in preventing home accidents. The social workers, for example, quickly realized that their aged patients were much more expensive to the county welfare fund when they had to be cared for in bed than when they were ambulatory. The PTA members realized that they could protect their children's health better if they knew how to prevent the many cases of poisonings, burns, cuts, falls, and other accidents characteristic of growing up.

Accident prevention is a matter of personal health, and some of the people working with this program almost became neurotic about the subject. Because of the emotional and personal aspects of these preventive activities, the program had a stimulating effect on every person involved. Disability and death were constantly evident. One could hardly mention home accidents without 1 or 2 people in the group relating a personal experience with a home accident. Identification of an individual or an audience with the problem was easy to establish. The death of a small boy from eating ant poison shocked the whole community into the realization that home accidents are extremely important. Education projects in classrooms evolved from this incident, and teachers began to feel responsibility toward preventing home accidents as well as school accidents.

Our community group of 70 decided to organize, with the assistance of the health education division of the health department. Four active work groups and a steering committee were set up.

Initial Problems

Inquiring minds began to ask about the definition of terms, and definitions became a stumbling block for a time. The words "home" and "accident" had different meanings for different people.

Another problem was establishment of a baseline against which a statistical measure might be used to determine the value of the project to the community. With only a limited amount of money for this task and our desire to accomplish something, we did not establish a baseline satisfactory to some statisticians. We thought we had appropriate data, but we found on analysis that they were quite inadequate.

Death certificates are of limited value in determining the number of deaths from home accidents. For example, in our city the greatest number of such deaths are among people over 60 years of age, and the cause is generally a fall. Did the elderly man have a stroke and fall, or did he fall first, causing an injury to his head? Did the person with osteoporosis fall because of the thinning bone or because of the slick floor? Did the elderly man with a fractured hip who died of pneumonia 4 months after the injury die of a respiratory disease or from an accident? What was the intent of the person who took an overdose of medicine? Was it accidental or suicidal?

Morbidity data are even more likely to be inaccurate than mortality data. With rare exception, most of the morbidity figures I have seen for home accidents have been estimates. Some household sampling has produced results of apparent accuracy, but even these are still open to question. However, all of the statistical inaccuracies should not frustrate one completely. The data do give one a general idea as to causation and frequency.

What Can You Do?

Once we had acquired as much background data and information about the occurrence of home accidents as we could, our question to each of the 70 committee members was, "What can the organization you represent, or you yourself, do about preventing accidents?" If time permitted, I should like to enumerate all the extremely worthwhile projects these men and women suggested and carried out. Some were short-range projects aimed at maintaining interest; others involved long-range planning.

During the 5 years in which the Kellogg Foundation helped support our home accident program, we experienced all of the stresses and strains to which a health department is accustomed. Personnel who were working full time on the project changed. Even the health officer was gone for a year. Some excellent ideas failed to work out as planned. Inservice training programs were tried. Various methods of community education were used in this experimental project. Language barriers were encountered by foreign-born people.

Evaluation Efforts

The one question that we felt we must answer was, did the project do any good? Did it prevent home accidents in San Jose?

There is no known way in which an accident prevention program such as ours could be evaluated completely and specifically, for there are too many factors at work in a community: the local and national press, radio, and television, as well as experiences of neighbors and friends, to mention but a few. A 20 percent increase in the population during the 5-year period meant that many families had moved into the city and were exposed to accident hazards caused by a change in residence. There were changes in jobs, and many new industries were introduced. All of these factors had not only a physical impact but an emotional one as well. It would be difficult to claim that a particular event produced a particular result. Our own personal actions in preventing home accidents are produced by a mosaic of experiences.

What did the figures show? Because of the unreliability of available data, we did not give much credence to the death certificates, which showed that accidental deaths decreased considerably. Approximately the same number of home accident cases were being treated at the first aid station after the program as before, but our population was increasing and people were discovering the value of the station. We decided that perhaps another type of evaluation would be of greater importance than a statistical one.

We asked each of the persons who had volunteered to work in the program what he thought about it. Did

the home accident prevention material help teachers to teach children about safety? Were the pamphlets prepared by our health education division of assistance to pediatricians and physicians in teaching parents about accident prevention? We were asking for an honest evaluation, for an opinion, of the total project. The evaluations varied greatly, as each one considered the accomplishments from his own point of view.

We also evaluated the program by the requests that we had for literature. We have had requests to permit reprinting of our pamphlet on prevention of accidents in childhood from many private physicians and local and State health departments in the United States. I am sure that these reprints would now total well over a half million.

Integration with Regular Programs

On June 30, 1956, the 5-year program ended, and our home accident prevention activities were integrated into the regular activities of the health department. We have continued to record and code services in this field. We have continued to provide health education services wherever we can.

One cannot introduce a new health program to a hard-working staff without advising them of work priorities. This process means that something must be dropped. The activity that is dropped depends on the interest of staff workers as well as on that of supervisors and administrators. Consequently, inservice training is an important function if home accident prevention activities are to continue. Few schools of nursing or schools of public health emphasize adequately the need for accident prevention activities.

Recently, I asked some of our staff members to be specific about what they were doing in accident prevention. Some were spending a considerable amount of time on school safety, infant safety, or safety in the home. It was interesting to note that four nurses who had been employed in the last 3 months and had not completed their inservice training in this field were not nearly as aware of either the problem or the methods of teaching as the persons who had had experience during the home safety project. Each person must demonstrate to himself that accidents can be prevented and that they are important in public health whether a particular health department or voluntary agency recognizes it or not.

General Observations

In summary, I should like to offer a few generalizations in this matter of accident prevention.

Accidents occur because of an individual's relationship to his environment. During infancy the degree of protection must be extremely high. The wise parent gradually lessens this protection and gives the child more and more responsibility as he is able to accept it. The question that faces every parent is, how much protection should a child have at each age? How much protection should the community supply even to adults? Under normal circumstances an adult with reasonably normal behavior gets along fairly well until chronic disease or old age begins to lessen his physical ability to compete with the natural hazards of living. It is then necessary for him to be surrounded again with an increasing amount of protection until he may require complete protection before his death. Thus accident prevention becomes a study of growth and decay.

Accidents occur because of man's emotional reaction to his environment. Mental health problems today present the most difficult challenge for us in public health to assist large groups of people. The distraught, disorganized mother with many children and no assistance in supervising them is going to have more home accidents than the one with equanimity who can instill a feeling of independence and assurance in her offspring. The choleric individual will have more accidents than his equanimous neighbor.

Public health's problem is how to immunize the person whose reaction to his environment may cause accidental injuries. In some individuals emotional imbalance is temporary; in others the usual behavior pattern is conducive to accidents. Both types need insight into their problems, and usually they require assistance in acquiring that insight.

Immunization for a person with normal behavior may consist of having an accident, then asking himself what he should do to prevent the next one, and finally taking reasonable, logical action as a result of his self-analysis. Unfortunately, many people who have numerous accidents do not take an analytical approach. Consequently, the epidemiologist must ask such people, "How did the accident happen?" "Why did it happen?" "What do you think you can do to keep it from happening again?"

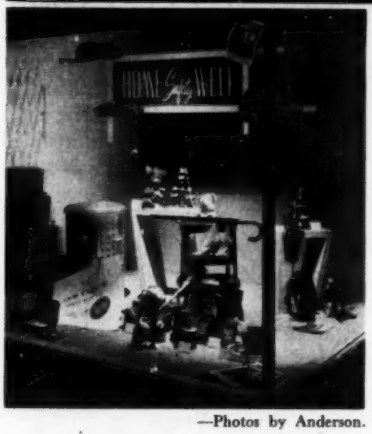
It should be recognized that environmental factors can play a role in the causation of accidents. A slippery bathtub, a ragged carpet, an unlighted stairway, and many other things may contribute to an accidental injury. But it is always much easier to blame something or somebody than it is to look at ourselves and admit that we were at fault.

Because almost everybody has a few accidents each year, it is difficult for the health department to develop an effective accident prevention program. What we need is a way to concentrate our efforts on those families that are having the greatest number of accidents. Our problems are case finding and identification of the accident repeaters. We are engaged at present in a research project sponsored by the National Institutes of Health, Public Health Service, to devise a method by which a health department can find families who have a high incidence of home accidents.

With limited health department facilities, it is extremely important that the problem of case finding be solved. Until we have improved our skill in finding high-incidence families, our efforts will be as disseminated as were those against communicable diseases before the epidemiology of these diseases was established. Prevention of accidents depends on finding persons who are causing accidents to themselves and their families. With the problem thus identified, accident prevention will be within the capabilities of an average health department.

not rec'd.

The idea of using a step stool instead of a chair to reach high places was illustrated in this window display (left) at Emery, Bird, Thayer in Kansas City, Mo.



—Photos by Anderson.

Above: One of the window displays for the Home Safety Week in March 1956 in Kansas City, Mo., was this one at Macy's which featured toys and household appliances, etc., with a safety angle.

not rec'd.

A Concentration of Effort

As Reported in the 1956 Home Safety Inventory

GEORGE M. BURNS managing director, Kansas City Safety Council, Kansas City, Mo., reported in the 1956 Home Safety Inventory that Kansas City accidents occurring in the so-called sanctity of the home with their accompanying injuries and deaths have always far exceeded accidents in all other categories.

In their continuing search for ways and means of combating the home accident problem, the Women's Activities Division of the Kansas City Safety Council, under the direction of Vice President Jean Mullane, decided upon a Home Safety Week to focus attention on the problem of home accidents. The week decided for this special emphasis program was March 18-24, 1956, which was properly proclaimed by Kansas City's mayor, H. Roe Bartle.

All of Kansas City's radio and television stations used spot announcements throughout the week; KMBC-TV and KCMO-TV conducted programs using members of the Women's Activities Committee as participants to describe the problem, and WDAF-TV ran the National Safety Council's film, *Home Safe Home*. There was also a radio program having to do with this subject on Station WDAF which was participated in by a member of our Women's Activities Committee.

Several chain stores participated by exhibiting stickers calling attention to Home Safety Week, and various local merchants featured safety in their advertisements.

"From the many comments received we feel that Kansas City's Home Safety Week produced the results which we expected, and we look forward to expanding this activity," Mr. Burns commented in his report.

TV DRAMATIZES HOME SAFETY

THIS TELEVISION script was developed as a half hour program in cooperation with the Kent County Theater Guild by the Preventive Crippling Program, Delaware State Board of Health, Dover, Del. This script was used over television channel 12, WPFH-TV, Wilmington, Del., March 30, 1957. It has been revised for this magazine publication.

The television script in the January 1958 issue of the *Home Safety Review* "Child Safety on TV" was erroneously credited to both the Kent County Theater Guild and the Preventive Crippling Program of the Delaware State Board of Health. That script was adapted by the Preventive Crippling Program from a television script published as an activities sheet in the *Home Safety Review* in January 1956.

HOME IS WHERE THE DANGER IS

THEME

ESTABLISH. Then up and out.

VIDEO

Card 1: "Home Is Where the Danger Is."

Card 2: "Presented as a public service by channel 12, WPFH-TV, in cooperation with the Delaware State Board of Health."

AUDIO

ANNOUNCER: It was an accident! How many times have we all heard that statement? Most people use it to express an event over which they believe they have had little or no control. Too many of us believe accidents are unforeseeable and unavoidable. This is *not true! Accidents,* the biggest *killer* and *crippler* of children and adults, are preventable. Accidents are caused; they do not just happen. A careless person is just an accident waiting for a place to happen.

WPFH-TV, in cooperation with your State Board of Health and the Kent County Theater Guild, presents "Home Is Where the Danger Is," the second in a series of special programs designed to alert us all to the many situations which lead to needless home accidents, accidents which can be prevented.

VIDEO

A closeup of Margaret Warren seated at a desk on which we can see a printed sign which reads "State Board of Health." She talks directly into the camera.

AUDIO

MARGARET: Good evening, I'm Margaret Warren, one of your health department's public health nurses. Every mother and father is aware of the great progress being made by modern medicine in treating and preventing many childhood illnesses.

Smallpox, diphtheria, and whooping cough are no longer the threat to a young child's life today that they were when you were a small child yourself. Doctors are learning more and more how to prevent diseases and also to modify them so they will be less severe. Yet it seems that the most preventable of all the causes of killing and crippling in children, those due to accidents, seem to be increasing rather than decreasing.

It may surprise you to know that accidents kill more youngsters from 1 to 15 years than *any* single disease, and the most alarming fact is that over one-half of these needless accidents occur in our homes, right under our noses.

Yet, most people believe that a home is a man's castle and sanctuary, but that certainly is not true of the 4,200,000 Americans who were injured in their homes in 1956[1]. *Their homes* became places of *accidents*—and worse, for 28,000 were killed as a result of accidents in homes! And the truth is that most of them could have been avoided with a little care, common sense, and information.

VIDEO

Slow fade out.

AUDIO

MARGARET: Take the incident in the Bing home—

VIDEO

Dissolve up to the kitchen of the Bing home. The walls may be bare of entrances or windows and the stage "dressed" with props to make as elaborate or as simple a set as desired. When the camera opens on a medium-long shot, Grace is busy in her kitchen. Her son, Bobby, enters.

AUDIO

BOBBY: O. K., Mom. I have the little rug laid in the dining room.

GRACE: Have you got them all

[1] *Accident Facts,* 1957 edition, published by the N.S.C., Chicago, Ill.

laid, Bobby? What about the little rug in the hall?

BOBBY: Yes, ma'am, it is in place, too. Gee, Mom, they sure smell of mothballs!

GRACE: That will go away in a little while.

BOBBY: Boy! That looks good! What are you making?

GRACE: Cookies. We are going to have company this afternoon.

BOBBY: (Enthusiastically.) Hey! Your cookies are the best in the whole world. I could eat a box full!

GRACE: (Smiling.) That's what every boy says about his mother's cookies, Bobby. But you'll have to wait until they're done.

BOBBY: O. K. But *yours* really are, Mom. Can I lick the spoon when you're finished?

GRACE: What spoon?

BOBBY: The one you mixed the batter with.

GRACE: (Shaking her head.) You're too old-fashioned, Bobby. I don't use a spoon any more. I put it in an electric mixer.

BOBBY: Shucks, licking the spoon is so much fun.

GRACE: Well, you can lick the beaters when I'm finished.

BOBBY: (Crossing to mixer which is turned on.) Will it be finished soon?

GRACE: In a moment. You have to give it some time, young man.

BOBBY: (Anxiously.) It doesn't look like there will be many cookies from such a little batter.

GRACE: There's another batch in the oven.

BOBBY: Two batches? That's keen! I sure love your cookies.

GRACE: So does your father. One batch wouldn't last any time, between the two of you.

(A car is heard off. It is approaching the house.) Someone's driving up. Look out the window and see who it is, Bobby.

VIDEO

Bobby goes off to one side, out of frame.

AUDIO

BOBBY: (Calling from off stage.) It's Joe Ross and his mother. (Calls.) Hi, Joe!

GRACE: (Calling.) Show them into the living room, dear. I'll be in just as soon as I take these cookies out of the oven.

VIDEO

Cut to the living room in the Bing house. Again there need be no entrance nor windows, but the living room furniture must give us the feeling of a comfortable home. As the camera opens, Bobby, Joe, and Mrs. Ross are just entering.

AUDIO

BOBBY: Mom'll be right in. She's making some real keen cookies.

HELEN: (Sitting.) Thank you, Bobby.

JOE: (Who is carrying a bat.) Look, Bobby, it's my new bat. Just got it this morning.

BOBBY: Boy! Where'd you get it?

JOE: Murphy's. Wanna try it?

BOBBY: Sure, it's a beauty. (Joe hands him the bat. Bobby squares off.)

HELEN: Careful, Bobby. You might break something. (Grace enters.)

GRACE: Hello, Helen. How are you, Joe?

JOE: I'm O. K.

GRACE: I'm so glad you stopped in, Helen.

HELEN: Well, we were just driving by. We've been to town, and Joe wanted to show Bobby his new bat.

BOBBY: Gee, Mom, it's keen. Can I get one?

GRACE: Maybe we'll be in town tomorrow, and you can get it then.

BOBBY: (He squares off again.) Boy! What a balance!

GRACE: Bobby, why don't you and Joe go outside and try it. You may break something in the house.

BOBBY: Sure. Come on, Joe, I'll get a ball, and we'll hit a few.

HELEN: Don't go far, Joe. We can't stay long.

JOE: O. K., Mom, we'll be in the backyard. (They start to leave. Bobby stops.)

BOBBY: Hey, Mom, can we have some cookies? They're finished now, aren't they?

GRACE: Yes. They're cooling on the kitchen table.

BOBBY: Oh boy, c'mon, Joe. Race you to the kitchen.

JOE: O. K. (They start out fast, with Bobby in the lead.)

GRACE: (Calling.) Bobby, quit running, you'll— (But before she can finish her sentence, there is a crash offstage and a scream from Bobby.)

VIDEO

Make a quick cut. Come up on a slow dissolve to the living room again. Dr. Phillips is just entering. He carries a black bag. Behind him is Grace.

AUDIO

DR. PHILLIPS: He's all right now, but I think we'd better take him to the hospital, Mrs. Bing.

GRACE: Will it be all right to move him? He was in such pain, Doctor.

DR. P.: I've given him a shot. He'll be more comfortable as soon as it takes hold. But that's a nasty break, and after we get it set, I'll want to put that leg in traction.

GRACE: Can I drive him in my car?

DR. P.: Yes, if you take it easy.

GRACE: I'll get a coat—

DR. P.: We'll wait a moment longer—to let that shot take full effect. Tell me, how did it happen?

GRACE: A friend was here visiting—you know, the Ross boy—and

Haste and an unanchored throw rug can cause a bad fall.

they started for the kitchen. Bobby was running. I called to him to be careful, but, before he heard me, he slipped on a small rug in the hall.

DR. P.: (Shakes his head.) Too bad! Another needless home accident!

GRACE: I've begged and begged him not to run like that, but he never listens.

DR. P.: I'm afraid you can't expect small boys not to run or jump or wiggle.

GRACE: But not in the house!

DR. P.: That seems to be one of the "occupational hazards" of being an active, healthy boy, Mrs. Bing.

GRACE: (Sighs.) Being the mother of a boy has its "occupational hazards" too, Dr. Phillips.

DR. P.: Yes, I suppose it does. (Glances at watch.) I think Bobby will be comfortable enough to move now.

GRACE: How will we get him to the car?

DR. P.: Your husband's rigging a litter from an old army cot. I think we can start now.

GRACE: I'll go bring the car around.

DR. P.: And don't worry, Mrs. Bing, Bobby's going to be all right. He just won't be able to run around for the next few weeks.

VIDEO

Dissolve out. Dissolve up to an office. The office is furnished with a desk and some chairs. Behind the desk we can see the doctor. He is busy working at some papers. As the camera opens, Mr. Harkness enters.

AUDIO

MR. HARKNESS: (Doctor looks up.) Hello, Doctor. How are you?

DR. P.: Fine, Jim. And you?

MR. H.: First rate. I brought little Kenny with me.

VIDEO

Shot of arm.

AUDIO

MR. H.: I thought you might want to look at his arm.

DR. P.: Fine.

VIDEO

Holds and examines arm.

AUDIO

DR. P.: How's your arm, young fella?

KEN: O. K., Doctor. It don't hurt any more. See, it's almost all better.

DR. P.: That's fine, Kenny, but you must remember never to pull on pot handles on the stove again.

KEN: I'll remember. It sure hurt for a long time. I couldn't go out and play or do anything for a long time.

DR. P.: Yes, Kenny, I know.

KEN: Mommy is more careful now, too. She never leaves pot handles turned out any more.

DR. P.: Fine, Kenny. Why don't you go out and look at some of those new magazines in the other room.

KEN: Gee, thanks, Doctor. (Ken leaves.)

DR. P.: Now, let's talk about you, Jim. Walk slowly now! That knee cleared up?

MR. H.: Yes. It doesn't bother me any more.

DR. P.: Good—

MR. H.: You seem deep in thought, Doctor.

DR. P.: Oh, I just sent the Bing boy to the hospital a while back.

MR. H.: Bobby? What's happened to him?

DR. P.: Broke his leg.

MR. H.: Bad?

DR. P.: Not good. And you know where it happened?

MR. H.: Don't tell me, I can guess. In his home.

DR. P.: Right. That's the seventh of the bad accidents I've treated that have occurred in homes in two months, Jim.

MR. H.: (Whistles.) Sure is a lot, Doctor.

DR. P.: And none of them should have occurred. Accidents like that are all preventable.

MR. H.: I know. We sure have learned the hard way in my home, too.

DR. P.: Just before you came in I treated another small child for an eye injury. This is another area where accidental injury is particularly serious.

VIDEO

Cut to table. On a table lies an array of darts, scissors, and knives.

AUDIO

DR. P.: I'd just like to show you some of the things that are responsible for a major portion of these accidents. In this case I think we can say, "It's the eyes we're going to be concerned with, particularly the eyes of our children."

MR. H.: You speak as though this were a matter of the utmost seriousness, Doctor!

DR. P.: It is. More than 100,000 times every year, parents of children in these United States have reason to wish they'd taken *their* children's eyes more seriously.

MR. H.: You don't mean to say that 100,000 American children lose their eyesight every year?[2]

DR. P.: Yes, they do, and from accidents alone. About one thousand of them become totally blind in one or both eyes. Three thousand more suffer permanent eye damage.

MR. H.: But that seems incredible! Where do these accidents occur.

DR. P.: Most of them happen during unsupervised play.

MR. H.: That certainly underlines the responsibility of both parents and teachers for training children to play safely!

VIDEO

Camera-lower to bring table full of deadly weapons into clear view, with doctor's hand as he picks them up, one by one.

AUDIO

DR. P.: And with "safe" toys. For example, here are a few common little items which might very well destroy the eyesight of some boy or girl: this dart with the sharp, metal tip, and arrows are just as bad. The slingshot is a notable culprit, along with this jackknife and these long, pointed scissors, when the rounded

[2]Data from the "The Eyes Have It," a script from the Bu. of Health Ed., A.M.A., Chicago, Ill.

Doctors can suggest to parents that they should teach children how to play safely with darts, slingshots, jackknives, and scissors, etc. Scissors with rounded tips are better than pointed ones for children to use.

kindergarten type would be just as good and much safer.

VIDEO

Camera up to doctor and Mr. Harkness.

AUDIO

MR. H.: I suppose all of you know the dangers of those things. We just don't expect accidents like that to happen to *our* children.

DR. P.: They happen to somebody's children—100,000 of them! And the injured child can easily be a playmate, rather than the owner of the toy.

MR. H.: It's a frightening thought! On the other hand, running with a pointed stick in your hand or throwing sand at each other on the beach could be as dangerous as any of the articles you've shown us.

DR. P.: That's quite true. And it's an additional argument for mother to keep an eye on the play area through the kitchen window and for the teacher to be present on the playground at recess. Children need freedom, of course, but only such freedom as they are able to use wisely.

MR. H.: I guess that's true. And a figure such as you quote represents real tragedy.

DR. P.: About three-quarters of all blindness in this country could have been prevented and *all* of these accidental injuries were preventable.

MR. H.: There's a new resolution going into effect at my house, Doctor! Safe toys for the children, training for playing safely, and better supervision when they're on their own!

DR. P.: Good for you. And while we're about it, may I suggest one more?

MR. H.: I'd be grateful.

DR. P.: Before you let a child have access to a new tool—hammer, saw, chisel, sewing machine, egg-beater—make a few trial runs with him to be sure he knows how to handle it properly and safely.

Flying particles such as a splinter of wood, a badly held tack, or the tip of a sewing machine needle can result in sad experiences if they land in the eyes.

MR. H.: That's a good thought, and we'll remember it. It's especially important for all those do-it-yourself fans. Training for do-it-yourself safety should start with the parents of future do-it-yourselfers! I know most industries now require the wearing of safety goggles at any job where bits of metal, glass, sawdust, or splinters could get out of control.

DR. P.: And those safety glasses have saved the eyesight of many a worker. Did you know there's even a national club—called the "Wise Owl Club"—which has more than ten thousand members, every one of them a worker whose safety glasses were shattered but whose eyes were unharmed because he was wearing them.

MR. H.: Sometimes, though, you can't help getting things into an eye. A little swirl of wind, dust, and grit blows up. What should you do?

DR. P.: Well, the "don'ts" get unavoidably mixed up with the "do's" in answering that. Let's see if I can show you.

VIDEO

Cut to silent film (2 min. and 44 secs.); (1) boy rubbing a fist into his injured eye; (2) boy blowing nose; (3) mother putting handkerchief corner in eye; (4) boy pulling down upper lid; (5) mother flooding eye; (6) boy with patch over eye.

AUDIO

DR. P.: (Makes points 1 to 6 as film is shown.) Don't rub the injured eye—either with your hand or a handkerchief. Rubbing not only irritates and increases the chances of additional scratches, but it may also introduce infection. Keep the eye closed and as quiet as possible.

Don't try to force the particle out by blowing through the nostrils.

Don't try to probe or scrape the object out, not with a tissue nor a handkerchief nor even with a cotton-tipped toothpick. You run the risk of further scratching and of infection. If any probing must be done, the doctor should undertake it after thorough examination and with all possible skill and precaution.

Occasionally, if you can see that the foreign body is against the upper lid, it can be gently removed against the lower lash by pulling the upper lid down over it.

But the best thing to do, and the only safe thing at home, is to attempt to wash it out. Any irritation to the eye, of course, is painful, which occasions tears. Your tears are antiseptic and may be sufficient to wash away the particles. If they're not, then flood the eye with lukewarm tapwater, either from an eyeglass or by squeezing it from a saturated wad of sterile cotton.

MR. H.: And if that doesn't do the trick?

DR. P.: Get the patient to a doc-

Eye protection should be worn at any job where bits of metal, glass, sawdust, or splinters could get out of control—even in the home workshop.

tor as quickly as possible. If the eye's been irritated to any extent, the doctor should look at it even after the particle is out. There's always the possibility of infection.

MR. H.: That sounds sensible.

DR. P.: The doctor may want you to keep the eye shielded from light and exposure with a little pad of clean gauze for a day or two if your eye really is scratched.

VIDEO

Cut to live camera in studio: doctor and Mr. H.

AUDIO

MR. H.: Well, I know a grain of sand feels like a mountain in an eye, Doctor. But I really didn't expect this first aid lesson to become quite such a production!

DR. P.: It may sound like a lot of fussing, Mr. Harkness, but I ask you: Is the sight of one eye worth it?

MR. H.: Ten thousand times over, Doctor! And more than that if it's one of my children's eyes! One more question though. We've talked about everyday eye emergencies. But suppose an emergency is violent. Somebody gets a BB or a stone from a slingshot or a dart into an eye?

DR. P.: For adults, it might be a steel shaving which flies from a grinding machine or a sliver when a do-it-yourself fan is careless at his electric saw.

MR. H.: What then? Is there any first aid we can give on the spot?

DR. P.: There are two things to do. First, cover *both* eyes. Second, put the patient in bed to rest and call the doctor.

MR. H.: Sounds grim when you know the patient is in agonizing pain, but undoubtedly you're right. Now let's see if we can summarize the things that can be done to cut down that horrendous toll of eye accidents in children.

DR. P.: I'd name four.

Take concerted action by groups of parents, teachers, and health and welfare workers to educate parents to avoid supplying their children with dangerous playthings.

Assure better supervision of play, both on public playgrounds and at home.

Educate parents, teachers, and others who are responsible for children to an awareness of activities and objects that are hazards to their eyes.

Teach the children an awareness of eye hazards and safe play practices through the organization of safety campaigns and poster and essay contests.

MR. H.: I agree with you all the way, Doctor.

VIDEO

Cut to silent film of poster (14 seconds).

AUDIO

MR. H.: And in closing, I'd like to have our audience see one such poster, made by a school child. I think it tells the whole story.

VIDEO

Cut to Margaret (nurse).

AUDIO

MARGARET: I'd like to add a few closing remarks here, Doctor. I was thinking about Bobby Bing's accident and how he slipped and broke his leg on one of those small throw rugs. Now, a simple way to prevent that would be to sew some rubber rings—the sort you see on Mason jars—on the bottom of the rug, like this (she holds up a small rug). It will keep it from slipping, even if a small boy, eager to get his mother's cookies, runs over it.

We cannot expect active, healthy children to walk. I needn't tell you parents that a child *always runs* instead of walking—unless he's doing a chore for us—but we can keep him from accidents by precautions such as this.

GRACE: And it means we can keep our small rugs! And while we're talking about children and their accidents, remember to keep all poisons and other harmful materials such as bleaches, waxes, detergents, old prescriptions, medicines, cleaning solutions, and insecticides out of the reach of small children. Remember, small children can't read labels, and little hands are curious.

MR. H.: And they never put things away! My kids throw toys all over the house. It's a wonder some of us haven't been killed stumbling over them!

MARGARET: That's right. Be sure toys are never left on stairs and that the stairs themselves are well lighted—especially those leading into the cellar.

And you ladies, streamline your working wardrobes. Look at this (she holds up a housecoat with long, flowing, wide sleeves). Pretty isn't it? But dangerous around an open flame if you're reaching over an open range. And it's long enough to trip over. It might make you feel like a queen to have a long train swishing after you, but it can give you a nasty fall.

At this time I'd like to remind our viewers who haven't already done so to send for their free copies of the home safety checklist. Just send a post card with the words "home safety" to WPFH-TV, Wilmington, Del. Remember, mothers and fathers, the old saying, "An ounce of prevention is worth a pound of cure," is still true today as the best rule for preventing those needless, tragic home accidents.

MUSIC

Up. Dissolve out.

CREDITS

Dissolve out.

HELPING THE HOUSEWIFE

Prevent Accidents in the Home

By A. L. Chapman, M.D.

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DURING 1956 ABOUT[1] 28,000 people died from the effects of home accidents, and accidents of all types were the primary cause of death in all age groups from 1 to 35 years.

In comparison with the community reaction evoked by heart disease, cancer, poliomyelitis, and mental illness, the community reaction to accidents has been conspicuously weak. With the exception of the National Safety Council, some State and local safety councils, and a small number of pioneering State and local public health officials, few agencies have given accident prevention the emphasis it warrants. Perhaps a feeling of helplessness has fostered this lack of emphasis, but with the growing acceptance of the fact that at least 80 percent[2] of accidents are caused by what people do or by what they fail to do, public health workers are in a better position to exert leadership in accident prevention.

Since they stem from the actions of people, accidents can be made the subject of study, analysis, and prevention in the same way that human factors involved in the susceptibility of humans to disease have been studied.

The magnitude of the research effort that will be needed to develop scientific data of sufficient quality and quantity to support scientifically valid efforts to control accidents will be great—no smaller, certainly, than the magnitude of the research effort now being made to determine the causes and means of preventing cancer, heart disease, and mental illness. Meanwhile, much can be done on an empirical basis to accelerate the present slow but steady decline in accident rates.

There is presumptive evidence, at least, that intensive as well as extensive efforts to organize community-wide education programs can contribute to a marked decline in the number of deaths and injuries resulting from home accidents.

Group Conferences

Since face-to-face, person-to-person communication is more apt to motivate people to act than communication using the printed word alone, the usefulness of the group conference technique is suggested.

Several reasons may be cited for limiting the use of the conference technique to housewives during the early stages of the development of a local accident prevention program:

1. Experience with the group conference technique has indicated that housewives are more conscientious in attending conferences than men.

2. Although many mothers now work, the great majority still remain at home during the day. As housewives they play a "guardian" role with respect to the children in the household and to oldsters as well.

3. The maternal instinct can serve as a source of motivation to influence the mother to attend group conferences on accident prevention and to apply the lessons learned there.

4. Group conferences can be fitted nicely into the frame work of orthodox public health operations in most communities since many public health nurses already are skilled in group conference techniques. Public health nurses are accustomed to working with mothers.

Booklets on Accident Prevention

The Division of Special Health Services of the Public Health Service has available two booklets that can be used in conducting local group conferences in home accident prevention. These booklets will be released through the regional offices of the Department of Health, Education, and Welfare to State health departments for final distribution to local health departments.

The first booklet, entitled *One Way to Develop Local Home Accident Prevention Activities,* describes the development of these activities. Four stages are suggested for introducing to public health workers or to housewives the principles and techniques that are important in the prevention of home accidents. Stage 1 provides for a series of weekly conferences at which subject matter contained in the second booklet may be discussed; stage 2 describes methods by which local resources may be identified; stage 3 gives three methods for determining the extent of the local home accident problem; and stage 4 lists eight typical activities that may be engaged in locally to provide experience and seasoning.

The second booklet, entitled *Home Accident Prevention Text,* presents a digest of principles and techniques important in developing home accident prevention activities. Sixteen chapters describe the accident prevention problem, the various factors which contribute to accidents, and the roles that can be played by public health workers and physicians.

The guide and the text can provide local health officers with a useful digest of current material on home accidents, plus an organized method of presenting it to members of their staffs and then, through group conferences, to key persons in the community. Both booklets may be used to orient housewives to the problem of home accidents and to methods of preventing them.

The task of involving thousands of professional public health workers and millions of citizens in an all-out attack on accidents is a tremendous one. It can only be accomplished by attacking the problem simultaneously on many fronts.

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[1]This article entitled "Helping the Housewife Prevent Accidents in the Home" by Dr. Chapman has been reprinted from *Public Health Reports,* vol. 73, No.1, pp. 59-60, January 1958, published by the Public Health Service, Washington, D. C.

[2]Studies indicate most of the home accidents are caused by these factors, but the precise percentage has not been determined.—Editor.

Ph561i

Floyd A. Van Atta

WHAT ARE WE TALKING ABOUT?

By Floyd A. Van Atta
Industrial Hygienist
United Automobile Workers
Detroit, Mich.

ONE OF OUR MORE[1] prominent chemists once made a substantial reputation for himself by means of the observation that, if he made up a series of tanning baths in each of which the concentration of one of the tanning components was varied and tanned a prime calf hide in each of them, the quality of the leather obtained from any bath was completely unpredictable. This was not a particularly new observation. Any practical tanner could have told him in somewhat less detail that that is what would happen.

The one thing which he did which was different from what the practical tanners had been doing for generations was to stop and consider what he had actually observed and precisely what the observation meant. It seemed to him rather obvious that it could not mean that the quality of the leather was independent of the concentration of the tanning agent. If that were true, one could obviously make equally good leather without any tanning agent which observably did not work.

The conclusion to which he was forced was that what he had really been investigating up to then, and quite unintentionally, was the variability in calf hides. Having once come to this conclusion it was a relatively simple matter to set up an experimental procedure which actually would give information on the nature of the tanning process and later on the nature of the calf hides.

That illustrates very neatly my major thesis: one of the primary needs in accident prevention research is to know what we are really talking about. And I do not find it easy, or even possible at the moment, to distinguish home accident prevention research from any other type of accident prevention research in this respect. This necessity for really knowing what you are talking about is a very simple and primary sort of thing, but the human mind is so constituted that we make it complicated. Almost all of us make every new question hopelessly complicated before we even start to look for an answer. One of our favorite ways of complicating matters beyond any hope of recognition is by means of our own sloppy speech and slovenly thinking. This is a very fundamental part of our problem.

One example which annoys me more than most, mainly because the habit of speech becomes or signals the habit of thought, is the almost universal trait of talking about accident rates when what are really under discussion are injury rates. There may be some a priori reason to assume that accident rates will follow a course parallel to that of injury rates. I do not know, nor do I know of any objective attempt to find out. Certainly there is no good reason for not finding out the causes of injuries and means for preventing them if possible. And in recent years we have made some progress in this direction.

But let us do it in the knowledge that we are preventing injuries and not preventing accidents. One person of my acquaintance who should certainly have known better, and did when he thought about it, replied to an inquiry about a questionable situation, "No, we have not had any accidents yet, but we have broken up about $12,000 worth of doors." This left a very plain inference that the destruction of the doors was deliberately planned, probably by the Safety Department.

This sort of egregious error is not particularly surprising when you consider that we are accustomed to filling out an accident report on every disabling injury in industry and to collecting many of our home accident statistics from hospital records.

I am quite sure also that one of the things which has made the investigation of home accidents peculiarly uninviting to any research people who would not have been repelled by the general tone of accident prevention propaganda has been this same peculiarity of the basic data. It has generally been collected for clinical, for insurance, or for other purposes not necessarily related to accident prevention or even to injury prevention.

I once had a desire to find out something about the causes of window washing accidents. I set myself an easy task by looking for the ones

[1]This paper entitled "The Need for Research in Home Accident Prevention" was presented by Mr. Van Atta, October 23, 1957, at a Home Safety Session of the 45th National Safety Congress in Chicago, Ill.

which resulted in compensated injuries because there had to be a complete report on each of them in the custody of the compensation authorities. The Industrial Commissions of three of our larger industrial states were quite cooperative, and in each of them I read the original "accident" reports on every reported injury of this type for 3 years. At the end of this rather tedious chore I had, in addition to sore eyes, a great deal of information on the nature, location, and extent of the injuries, the clinical course of the patients, and the amounts of compensation and medical payments. The only thing which I lacked was any clue as to where to start to look for the causes of any of these accidents.

This is a specific example of a general condition. To look a little closer to home I might suggest a look at the rather famous "heart kitchen." I do not wish to suggest that the idea of the "heart kitchen" is not good or even that its practical effect has not been desirable, but I do wish to suggest that the whole thing was set up in the presence of a woefully inadequate amount of evidence. The general idea is to save effort, and presumably strain on the heart, by saving steps and by saving stooping. It would seem logical before going into this project to determine in an objective manner what types of activity would demand the maximum metabolic price and, presumably, put the maximum strain on the ailing heart. A preliminary determination of the metabolic cost of a number of movements of this sort has since been made for quite another purpose, and it turns out that the values are very surprising, at least to me.

This brings me to a second general point: that research in general is not only a close or instructive study of a phenomenon or substance; it is also a critical study. I have seen a masters degree thesis on the use of articles by Shakespeare. It certainly represented a close study of some parts of Shakespeare's writing, but it was, in my estimation, about as much a research project as it would have been for the young man to have spent the same amount of time in counting his toes. It established with an unspecified precision a series of numbers which were already known with an unspecified, although presumably lower, precision. I do not classify it as useless research; for all I know it may have some very practical application, and I think that it is generally both risky and unprofitable to comment on the practicality of any project. I criticize only the fact that it is completely uncritical and, as a direct consequence, adds nothing to the sum of human knowledge.

This is the fundamental difficulty with a great deal of what has frequently passed as research in home accident prevention. It has been more closely related to propaganda or education than to research. It is an unfortunate fact that research is very seldom glamorous and seldom spectacular. That is something which the press agents have thought up for the purpose of capturing the public's money for medical research —to the very probable detriment of the research.

Research is normally a process of isolating from a phenomenon a part small enough that you can begin to understand, or at least observe, the conditions which control that part. Having picked out the controlling conditions it is necessary only arbitrarily to vary each of them in turn while holding the others constant to arrive at an understanding of that particular system.

Sometimes we are lucky enough to be concerned with a relatively simple system, a rigid ball on a rigid plane perhaps, in which we can observe the significant conditions directly and unequivocally. In this instance any single ball from a universe of balls and any single plane from a universe of planes will tell us all that we require to set up a mathematical formulation of the system.

Sometimes the situation is more complex, and we cannot observe the boundary conditions directly; perhaps we are concerned with the molecules of a gas. In this instance, if we are really lucky, the unobservable conditions may follow the simple laws of probability, and by observing a sufficient number of instances their effects will cancel themselves out and permit us to observe the effects of the conditions which we can control or which we can observe. We then have become in some sense statisticians.

If the universe in which we wish to make our examinations happens to be a human population, there is generally an unwillingness on the part of the experimenter to apply experimental conditions with rigid controls and an even greater reluctance on the part of organized society to permit him to do so even if he has the desire. Normally this makes it extremely difficult to carry on meaningful investigations of any sort with human populations. If we are able to locate two closely similar populations in one of which chance has provided us with a condition, perhaps a smallpox organism, which is not operating in the other, we have a controlled experiment provided by chance and in observing it we become not only statisticians but epidemiologists. Obviously it is not necessary for the experimental variable to be an organism. Any defined variations between two recognizable and otherwise homogeneous populations will yield results by the methods of the epidemiologist.

It is, however, necessary in any such investigation to be able to define the populations involved to demonstrate that there is a single defined cause or a definite number of defined causes at work, and to demonstrate that except for these causes the populations are homogeneous. In accident prevention investigations the difficulty which the epidemiologists have lies in the fact that there has been, up to now, no demonstration that there are two or more definable populations at any point in time or space one of which is contracting accidents as the result of one or more definable causes while the other is not contracting accidents because of the absence of these causes. It would be more hopeful if you could demonstrate two otherwise homogenous populations one of which was contracting accidents.

R. S. F. Schilling has expressed

the situation well for industrial health investigations when he says, "It seems we must await the development of better techniques for assessing mental illness and determining its cause, and we must define health in terms which are measurable. Until this is done the research worker will be inclined to leave health and mental illness aside and study disease which can be measured. As he grows older and becomes more aware of the immense difficulties of methodology in occupational health research he will derive more satisfaction from planning and completing neat and conclusive investigations than from making heroic attempts to achieve unattainable ideals."

Change the industrial health phraseology to accidents, and it applies perfectly and completely. When we come down out of the clouds, stop being do-gooders, strip our problems down to a size where we can actually see the important conditions, define precisely what it is that we wish to know, and consider critically how to find it out, we may begin to make some substantial progress in accident prevention research.

This is not nearly as glamorous a prospect as looking at the "big picture" and writing erudite papers on the "accident prone" or on the "wish for self-destruction" or on "guilt feelings in accident causation," but it will eventually bring some definable results. When it has proceeded far enough that it is possible to set up a reasonable research project with definable and possibly achievable goals, it might even become easier to get some money to carry on the work.

As a start on the language side, which I think is an essential groundwork, I would recommend to you the definitions in the September 1957 issue of the *Home Safety Review*.

ACCIDENTS AMONG THE AGED

CONSIDERABLE PROGRESS[1] has been made in the United States during the past two decades in reducing the mortality from accidents among persons at ages 65 and over. In the past six years alone the decrease has amounted to 15 percent, the death rate dropping from 210 per 100,000 in 1950 to about 180 in 1956. Nevertheless, accidents in our country still take more than 25,000 lives a year at ages 65 and over, a higher toll than from any other cause except the cardiovascular diseases and cancer.

As older people advance in age, the accident death rate among them rises sharply. Among white men in 1953-54, the mortality increased from 141.7 per 100,000 at ages 65-74 to 730.7 at ages 85 and over. Much more rapid was the corresponding rise among white women—from 72.1 to 903.0 per 100,000. As a result of this difference in the two age curves, the sex-ratio of the mortality changes with advance in age. Whereas at ages 65-74 the accident death rate among men was twice that for women, at ages 85 and over women had the higher rate by an appreciable margin.

[1] "Accidents Among the Aged" has been reprinted from *Statistical Bulletin*, vol. 38, pp. 6-8, June 1957, published by the Metropolitan Life Insurance Co., New York, N. Y.

TABLE 1—PERCENT DISTRIBUTION OF DEATHS FROM ACCIDENTS BY PLACE OF ACCIDENT
White Persons, by Sex, Ages 65 and Over. United States, 1953-54

Place of Accident	White Males			White Females		
	Ages 65-74	Ages 75-84	Ages 85 and over	Ages 65-74	Ages 75-84	Ages 85 and over
All Places	100	100	100	100	100	100
Transport	42	29	12	30	10	3
Nontransport	58	71	88	70	90	97
Home	23	36	51	44	57	63
Resident institutions	4	9	12	7	11	12
Street and highway	4	4	3	2	2	1
Farm	5	3	1	*	*	*
Public buildings	3	2	1	2	1	1
Industrial places and premises	2	1	*	*	*	*
Other specified places	6	3	2	2	1	1
Unspecified	11	13	18	13	18	19

*Less than 0.5.
Source of basic data: Reports of National Office of Vital Statistics.

Table 1 shows the relative frequency of fatal accidents among older people by place of occurrence. Two main facts emerge from these data: transport and home accidents together account for about two thirds of all the deaths from accidents at almost every age group in each sex; secondly, accidents in and about the home account for an increasing proportion of the total accident mortality with advance in age, complementing the experience for transport accidents. Thus, among white males in 1953-54, the proportion of home to all fatal accidents increased from nearly one fourth at ages 65-74 to one half at ages 85 and over; among white females, the corresponding increase was from somewhat over two fifths to nearly two thirds.

An appreciable number of accidental deaths among older people occur in resident institutions, such as homes for the aged, nursing homes, and hospitals. About one tenth of all the fatal injuries at ages 75-84 were sustained in such institutions; at ages 85 and over, the proportion was one eighth. These relatively high proportions reflect the very considerable number of aged in resident institutions as well as

TABLE 2—DEATH RATES FROM ACCIDENTS BY TYPE
White Persons, by Sex, Ages 65 and Over. United States, 1953-54

Type of Accident	Average Annual Death Rate Per 100,000			Percent Distribution		
	Ages 65-74	Ages 75-84	Ages 85 and over	Ages 65-74	Ages 75-84	Ages 85 and over
	White Males					
Accidents—Total	141.7	303.4	730.7	100	100	100
Falls	43.7	151.7	545.2	31	50	75
Motor vehicle—total	54.2	82.2	76.1	38	27	10
Collision with pedestrian	24.6	46.4	47.9	17	15	7
Burns and conflagrations	9.4	22.0	40.0	7	7	5
Fire and explosion	8.3	19.2	33.3	6	6	5
Drowning (excluding water transportation)	4.6	5.1	5.5	3	2	1
Machinery	3.8	3.1	1.3	3	1	*
Railway	3.4	4.6	6.7	2	2	1
Absorption of poisonous gas	2.7	4.1	3.9	2	1	1
Firearm	1.9	2.0	1.5	1	1	*
Poisoning by solids and liquids	1.2	1.1	2.2	1	*	*
Inhalation and ingestion of food or other objects	1.0	2.1	5.3	1	1	1
All other	15.8	25.4	43.0	11	8	6
	White Females					
Accidents—Total	72.1	275.0	903.0	100	100	100
Falls	36.5	213.0	802.6	51	77	89
Motor vehicle—total	21.1	26.4	24.7	29	10	3
Collision with pedestrian	7.1	12.3	10.2	10	4	1
Burns and conflagrations	5.8	15.2	22.7	8	6	3
Fire and explosion	5.2	13.1	18.6	7	5	2
Drowning (excluding water transportation)	.6	.9	.8	1	*	*
Machinery	.1	.1	.1	*	*	*
Railway	.6	1.1	.5	1	*	*
Absorption of poisonous gas	1.1	2.1	2.7	1	1	*
Firearm	.1	.1	0	*	*	*
Poisoning by solids and liquids	.6	.4	.5	1	*	*
Inhalation and ingestion of food or other objects	.4	.9	2.2	1	*	*
All other	5.2	14.8	46.2	7	6	5

*Less than 0.5.
Source of basic data: Reports of National Office of Vital Statistics.

their proneness to accidental injury. The fatal accidents which occur among the aged on farms, in public buildings, and in industrial places are largely concentrated among men.

Table 2 shows the relative frequency of fatal accidents by type. Falls comprise a large and increasing proportion of the total accident mortality during later life. Among white males falls were nearly one third of all accidental deaths at ages 65-74, one half of the total at ages 75-84, and three fourths at ages 85 and over. The proportions are even larger for white females, ranging from one half at ages 65-74 to nine tenths at the oldest ages.

Motor vehicle accidents rank second as a cause of fatal injury among older people as a group; in fact, among men at ages 65-74 such accidents outrank every other type, including falls. In this age group, motor vehicle accidents accounted for nearly two fifths of the total accident mortality among men and for somewhat over a fourth among women. Pedestrians constituted a majority of the traffic fatalities among men at ages 65 and over; among women the proportion was almost as large.

Fires and burns by other means rank third as a cause of accidental death at the older ages among both men and women. Most of these victims are trapped in burning buildings; a large number are unable to escape because of the infirmities of old age. Other causes of fatal injury which take an appreciable toll of life among elders, particularly men, include drowning, machinery accidents, railway accidents, and the absorption of poisonous gas.

Letters to the Editor

Martinez, Calif.
Dec. 12, 1957

Dear Mrs. Reed:

Your *Home Safety Review* page on the "One-Week Survey" [December 1957] is very much appreciated. Our department has conducted two such surveys, during Child Safety Week in 1954 and 1956.

We have always felt that fairly reliable data on the total accident picture, especially in the realm of home accidents, are difficult to obtain and fraught with inequities in reporting. Although a comprehensive one-week study also has disadvantages (seasonal variations the most obvious), such an "all-out" reporting device is within the realm of a health department's scope and ability to perform. After much experience with communicable disease reporting, we believe short-term cooperation is good when compared to continuous or long-term reporting systems which soon become disinteresting and too much a chore for those involved.

Sincerely,
H. L. Blum, M.D.
Health Officer
by: /s/ W. A. Ketterer, M.D.
Asst. Health Off.
Contra Costa Co. Health Dept.

Washington, D. C.
Dec. 12, 1957

Dear Mrs. Reed:

. . . I would like to add my own thanks [to Dr. Leroy E. Burney's] for the excellent distribution you have provided for Dr. Burney's views on accident prevention as a public health activity [in the December 1957 *Home Safety Review*]. It is most encouraging to all of us in the Accident Prevention Program that his intense interest in the accident problem has continued from his former position of Deputy Bureau Chief to his present office of Surgeon General of the Public Service.

Sincerely yours,
/s/ James L. Goddard, M.D.
Chief, Accident Prevention Program
Div. of Spec. Health Services
Bu. of State Services
PHS, DHEW

WHAT ABOUT MEASUREMENT?

By Thomas Fansler
Director
Home Safety Division
National Safety Council
Chicago, Ill.

Some questions are posed on measuring the effectiveness quantitatively of home accident prevention programs

IN THE TINY[1] English village of Edlesborough, near Oxford, is a medieval parish church standing upon a knoll so that it dominates the surrounding countryside. Fixed to a stone in the pavement of the north aisle of the church and near the pulpit is a memorial brass which originally covered the grave of a person now known only by his initials, M. W. This memorial brass is beautifully engraved and inscribed. The inscription, in a very free translation of the original Latin, reads as follows:

"What I've spent, I have had.
What I denied, I am being punished for.
What I hoarded up, I have lost.
What I have now is what I gave away."

For over 500 years this small memorial has been proclaiming a rule of life which is as profoundly true today, both psychologically and ethically, as it was in 1412, when it was first engraved on brass. Modern ethics and modern psychology both tell us that you don't solve the problems of your own happiness and feelings of personal worth by concentrating solely on yourself. Only by the giving of himself freely and wholeheartedly, never denying to others the best that he's got and never spending himself only for his own gains, does modern man, like medieval man before him, really find the fundamental values of life.

This unknown medieval person M. W., was not the first to enunciate a similar doctrine. Indeed, throughout the literature of the Judaic-Greek-Christian world we find recurrent echoes of this idea that the giving of oneself to a noble and mighty cause is the one sure way of achieving those inner satisfactions that it is death to be without.

One often wonders why men and women devote themselves to public health. To begin with an individual's health seems like a very personal thing, almost akin to the feelings that one has about religion. The differences between the two are differences of degree and not of kind. Because of this the public health worker is often put in the position of being told to "mind his own business, for what I do is my concern." Then too, in the main, the profession of public health is poorly paid, as the modern world judges salaries. The same is true for persons in the safety business. Whatever it is that the safety engineer or the safety educator gets out of life, he doesn't get much in the way of financial return.

The people in the safety business have a saying that seems apt: "To be in safety you don't have to be crazy, but it helps." Probably the same may be said for public health personnel. All right, both safety and public health people are crazy. They are both apt to be told to go jump in the lake, and both are underpaid. This could turn out to be a very sad story indeed, a piling up of our troubles and woes. It is possible that doing just that, that is, using some psychological dumping ground to unload our gripes and worries, would do some good. Our egotisms, our vanities, our strivings for personal recognition as well as our gripes and our prejudices, however, should be left there in that dumping ground, for we have a job to do.

We have a job to do that demands of us the utmost that we can give. It demands our keenest thinking, our most sympathetic understanding, and our most acute listening. Parenthetically, it is impossible to overstress the importance of that last point, listening. It is difficult to practice, but listening is often more important than talking.

* * * * *

The safety movement welcomes the interest of medical and health personnel in the field of safety, especially home safety. When the medical profession and the public health profession really buckle down to the business of home accident prevention, then we shall begin to get somewhere with the problem. In the last 6 years [1949-1955, based on preliminary '55 figures] there has been a considerable decrease in not only the number of home accident deaths but also in the rate; a decrease in deaths numbering some

[1]This is the keynote address presented by Mr. Fansler at the Second Conference on Prevention of Home Accidents which was conducted at the School of Public Health, University of Michigan, Ann Arbor, Mich., June 19-21, 1956. This talk has been published by the School of Public Health in Continued Education Series No. 68, *The Second Conference on Prevention of Home Accidents.*

3,500 has been reflected in a concomitant rate decrease of approximately 22 percent. It would seem fair to ascribe a considerable portion of the credit for that decrease to the awakened interest and accelerated activity in the field by medical and health groups.

We still have a long way to go, however, and the road is unpaved. It's a faint, twisting track through many dark places. The things we don't know about accident prevention are manifold, and some of the most important things that we don't know are concerned with measurement.

To begin with, let's admit once and for all that this is a tough assignment. Now that it's been said, there will be no need for having the idea repeated a hundred times * * * We know that the subject is difficult * * * With that much behind us, we can get down to work on what it is we are measuring and what measures to use.

There is a story about the facetious Irishman who went into a dairy bar and said, "Give me a yard of milk." The clerk, not to be outdone, dipped his finger into a glass of milk, drew a milky mark on the counter a yard long, and said, "That will be 10 cents." Well, Pat scratched his head for a moment, then grinned and said, "Okay. Wrap it up and I'll take it along."

This story is particularly apt when we're talking about measurement. It is very obvious that inches, feet, yards, etc., are not the kinds of measures to use when speaking of volumes or weight. In measuring minute differences in length we must use millimeters, but in working with the tremendous differences of modern astronomy we have to coin new measures like "light-years." Breeders of horses, in speaking of the size of an animal, use the term "hands" rather than feet to indicate height. Not to labor the point further, we use different kinds of measures for different sorts of purposes.

What kinds of measures seem to work out best when speaking of the numbers of persons injured in home accidents? Do we use yards, quarts, pounds, furlongs, hands, or what? * * * In the field of home safety what are the kinds of measurements that seem appropriate to use in discussing environmental factors, human factors, family participation, health department participation, and participation by community agencies?

Let us consider some examples. A community reports to us, "We have 75 agencies in our community participating in this program." What do we mean by "participating"? Did some agencies participate only by allowing their names to be included in the list? Did some go a step further and undertake sponsorship?

In another case, a health department may report "no activity worth mention." We might take the report at its face value as no activity. On the other hand, there may be a considerable amount of activity integrated into the regular program of nursing. What, then, is "a little" activity and what is "a lot"?

Our job here is to determine what can be measured and how we measure it. We are not at this time asking the question: "Is this any good?" That question will come later at another conference. Our job at this meeting is quantitative rather than qualitative. In other words, our job is to determine, as specifically and as accurately as we can, "how many" and "how much." The answers to these problems will be of tremendous help and value to professional persons working in this field.

Probably the best reason why this is necessary is that answers of this kind will help determine the attack on the problem of home safety, in other words, the kinds and amounts of ordnance and ammunition required to accomplish our objectives. To continue the military figure of speech, is home safety the kind of problem that can be handled best by individual snipers perched in trees and picking off the enemy one by one? If so, then there is no sense in bringing up a battery of heavy artillery. Or is this the kind of problem that demands a battalion charge, shoulder to shoulder with fixed bayonets?

Money for public health work is not always easy to get. Some of you may have found it easy to obtain large budgets, but by-and-large, throughout the country, the talk is that money for public health is hard to get. Money for safety is also hard to get. So, if we haven't all the money we'd like to have for health and safety, it behooves us to study carefully how we are to spend effectively what money is available. We have to lay the basis for our later evaluative studies by first tackling the development of certain quantitative measures. * * * The answers to the problems * * * will help greatly to show our professional colleagues how to accomplish home accident prevention as efficiently as possible.

You know the Confederate general's definition of victory, "Gittin' thar fustest with the mostest." To paraphrase that, we might say that "efficiency" is "gittin' the mostest with the leastest." In many respects, both public health and safety have only the "leastest" to work with, and often we have to try to accomplish the "mostest with the leastest."

In closing, there is one idea that is good to remember when you are in a working conference. The thesis is from the Sermon on the Mount which contains ideas so baffling to modern man but so profoundly true psychologically. The following quotation is from St. Matthew's Gospel:

> "And if any man will sue thee at the law, and take away thy coat, let him have *thy* cloak also. And whosoever shall compel thee to go a mile, go with him twain."

One can see the connection between that medieval man's rule of life shown on the Rose Brass at Edlesborough Church and that enunciated by Christ in the Sermon on the Mount. The "cloak" and that "second mile" are above and beyond those things that you are compelled to do. They are, in other words, freely given, and as such they are still a part of you—the only part that counts.

This is an important conference. In the home safety field, it can be one of the most important that has ever been held. You can best help make it so by doing that little extra beyond what is required, in other words, by going the "second mile."

SAFE AREAS FOR PLAY

By Mrs. Ethel L. Garrison

Education Assistant
Home Accident Prevention Unit
Maryland Department of Health
Baltimore, Md.

In the yard remove roots or stones and fill in holes which might cause a fall.

Accidents Occur at Play

To adults, play[1] is considered a form of recreation to be indulged in when work is done, but play is the chief occupation of children. Its importance as a factor in the complicated process of growing up cannot be overemphasized. Play assists in the development of every sphere of growth—physical, mental, emotional, and social. Play provides opportunities for learning experiences, coordination of muscular and sensory abilities, problem-solving, and self-expression. Play promotes special interests and skills, helps to create social awareness, and aids in successful adjustment to life situations.

Since the majority of children's time and energy is spent at play, it is not surprising that numerous accidents occur during such activity. Ways to decrease these accidents to children during play are by providing: (1) a safe place to play, (2) toys and equipment for play, and (3) knowledge of safe practices.

Safe Playgrounds

A safe place to play is one of the primary requirements for childhood safety. A child needs to run, to climb, to make noise. Any child old enough to walk and run needs *space* in which to play. Most of his play should be out-of-doors where he can have sunshine and shade and plenty of fresh air. The ideal space is a fenced-in yard. A child under 3 can't be depended upon to stay out of the street if that is where his ball goes. Some children 2 years old can scale a fence of average height, with or without the assistance of a box or toy. Granting that a fence is no guarantee of security and presents no insurmountable barrier, still it is an indisputable boundary marker and an ever-present reminder of limitations. The fence is most important for the home on a busy street.

The yard should be free of wire, tin, glass, or anything on which the child can cut himself and of roots, holes, and stones which might cause him to fall. In the absence of his own yard, a child may play in the yard of a playmate or a friendly neighbor. If no yard is available, he should have access to a school or other supervised playground within a few blocks of his home.

Safety Indoors

There is need of indoor play space, too. Lack of appropriate outdoor space increases the importance of setting aside a place for indoor play. Sometimes an attic, porch, or basement is available. The child's own room can be arranged for play. If he has no room of his own, the corner of a room with space for his things will answer the purpose. Even with a place of his own in which to play, the child will not want to stay in it all of his playtime.

There will be times when he wants to join other members of the family wherever they may be. These times offer parents an opportunity to teach safety by example and by instruc-

[1]This is the third of a series of articles entitled "Safety for Children" released by the Maryland Department of Health in 1957. The department, according to J. Charles Judge, chief, Home Accident Prevention Unit, has made copies of this series of articles available to all county health departments and the public health nurses in Maryland.

tion while the child learns to "help." Father can explain to the fire watcher the reason for not leaving the bonfire until it is out. Mother can request simple errands such as, "You may bring the scissors to me if you will walk carefully and carry them with the pointed end downward."

The indoor play space is the setting for imitative play of "Mothers and Fathers," games with other children, and hobbies. There is no reason to allow a child to clutter the entire house, to run in the house or on stairs, or to climb on furniture. Besides failing to teach him, permitting such practices helps to create hazards for the child and the rest of the household.

If there are pets in the household, keep them healthy and have them immunized against disease. Humans can contract some animal diseases. A child needs to learn safety in regard to animals, whether or not the household contains a pet. Teach your child never to pet any strange animals and never to tease animals—even neighborhood or family pets. No animal should be disturbed when it is eating. The child should report to you if bitten by any animal.

A sandbox in his yard will provide a place for a child to dig—safer than piles of sand or dirt which might become dislodged and injure or suffocate the child.

Unsafe Areas

Parents must teach children what places are *unsafe* to play and the reasons for prohibitions. With understanding, they will learn about safety and be less apt to resent restrictions. Of course, they should not play in the street unless it has been roped off for play. Hallways, stairs, and fire escapes are not suitable play areas, nor should children be permitted to play in empty houses, around machinery, wharves or barges, on railroad or industrial property, in dumps, or in junk yards.

Children need to be warned against playing on piles of sand, gravel, cinders, rock, coal, or hay which may become dislodged and injure, imprison, or suffocate children. They should be cautioned to stay out of culverts and drains, excavations, or other holes where they may be trapped by a cave-in and against digging in soft dirt unless they can be supervised by an adult. A child's urge to dig may be satisfied by providing a place in his own yard where he may do so.

Explain to your children why they must not get into any icebox or other enclosure where they may be trapped. If you discard a refrigerator, chest, or icebox, be sure to remove the door so there is no possible chance that a child may be trapped inside.

All Should Learn to Swim

Unless they are supervised, children on farms should be kept away from watering tanks. The same admonition applies to backyard wading pools. When there is water play, the child should not become chilled. Never leave small children in the bathtub or around water without being watched constantly. A child may drown in only a few inches of water. Pitfalls which are often fatal include post holes, ditches, excavations, ponds, and abandoned wells. If such conditions cannot be corrected, safeguards should be applied for any of these that may be contained on your property.

Drowning is second only to motor vehicles as a cause of childhood accidents! (Aside from motor vehicles, drownings are the chief cause of accidental deaths in the age groups from 5 up to 44 years. These deaths include swimming and boating accidents *and* falls into water while working or playing near it.) All children should learn the rules of water safety and how to swim. A child who has the advantage of swimming lessons will gain a respect for the water. Free instructions are given in most communities each year by the American Red Cross.

Caution Regarding Strangers

By the time children are 6 to 7 years old, teach them their home telephone number and how to use the telephone. They should be cautioned against accepting gifts or rides from strangers and against accompanying strangers who ask directions or offer jobs.

Children need to know that it can be dangerous to play alone in alleys or isolated places and that it is best to take along a friend when going on errands, to the playground, or to the movies. When children are old enough to recognize and write numbers, tell them how important it is to write down the license number of any stranger's automobile they might see their friends get into and to notify the nearest policeman or adult at once.

You should know *where* and *with whom* your children are at all times.

WHAT PRICE ACCIDENTS?

ACCORDING TO AN editorial "What Price Accidents?" on page 838 of the *Journal of the American Medical Association* for October 19, 1957, there "is a summary by the Bureau of Medical Economic Research of the American Medical Association of its nationwide survey of the burden of patients hospitalized on account of accidents. The summary offers [reprinted here] several criteria for measuring the accident load. For example, payroll expenses of these hospitals because of accident cases in 1955 were 198 million dollars, or 7.3 percent of the total payroll. In general, the burden of accident cases is 7 to 8 percent of the grand total for the 6,000 general and special hospitals in the United States. Presumably, the burden on physicians comes within the same range. The proportion of cases treated by physicians in the home and the office in the accident category will be estimated in later bulletins in this series. The National Safety Council has utilized earlier studies of the Bureau of Medical Economic Research—notably, the finding that fatal accidents outrank heart disease, whose special victims are retired persons, as the number 1 destroyer of the working years of life in the United States. Moreover, these new findings, in addition to others in this series of studies by the Bureau of Medical Economic Research, clearly establish that accidents and the other great nondisease category, pregnancy, together account for about one-fourth of the aggregate hospital load. It is most unfortunate that many careless observers infer that patients in disease categories comprise 100 percent of the national hospital burden."

ACCIDENT BURDEN ON HOSPITALS[1]

Bureau of Medical Economic Research

THERE IS PRESENTED *below a summary of bulletin 104, "Accident Burden on Hospitals," a detailed survey of the burden of inpatients in the accident category on American hospitals, the attending physicians, hospital personnel, and facilities. * * * A copy of [this bulletin] may be obtained by writing to the Bureau of Medical Economic Research, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill. * * **

FRANK G. DICKINSON, PH.D., *Director*

ACCIDENT BURDEN ON HOSPITALS

WHAT IS THE burden imposed upon American hospitals and, more particularly, upon physicians by the steady stream of patients injured in accidents? What proportion of patients discharged, particularly from the general and special hospitals, were in the accident category? What proportion of the total patient-days were accounted for by persons hospitalized by accidents? How many millions of dollars were expended by hospitals during the year to take care of these accident cases? The results of our search for answers to these and related questions are presented in bulletin 104 and in the summary below.

This study, as its title indicates, was confined to hospitals and to the classification of accidents as defined by references to Standard Nomenclature of Diseases and Operations, fourth edition. The data were collected originally for the month of November, 1955. Data were also obtained for March, 1956, for many of the hospitals that did not respond to the original request. The role of accidents in mental and tuberculosis hospitals was so minor that the data in this summary refer only to our estimates for the 6,000 general and special hospitals.

The data for patients discharged during November, 1955, indicate the following findings:

1. The 128,000 inpatients discharged who were hospitalized because of accidents comprised 6.9 percent of all patients discharged during the month.

2. The total inpatient-days for these inpatients were 1,370,000, or 8.1 percent of total inpatient-days for all inpatients discharged during the month; the average length of stay was longer—10.7 days versus 9.1 days—for accident inpatients.

3. Of the total inpatients discharged during the month who were hospitalized because of accidents, 65.2 percent were males—11.3 percent under 15 years of age, 35.6 percent in the age group 15-44, 13.1 percent in the age group 45-64, and 5.2 percent, 65 years and over; and 34.8 percent were females—5.8 percent under 15 years of age, 12.4 percent in the age group 15-44, 8.6 percent in the age group 45-64, and 8.0 percent, 65 years and over.

4. Although our term "emergency room" was subject to some misinterpretation, 31.8 percent of all patients (outpatients and inpatients) seen in emergency rooms were accounted for by accidents.

5. During the reporting year (ending Sept. 30, 1955, for most hospitals) the care of accident patients required expenditures of 311 million dollars, or 7.4 percent of the total annual expenses of the 6,000 general and special hospitals. (Presumably the total for 1957 involved many more millions of dollars.)

6. The annual payroll expense of these hospitals for the treatment of accident cases was 198 million dollars, or 7.3 percent of the total payroll.

7. The personnel devoted to the care of accident cases totaled 68,200, or 6.7 percent of total personnel.

8. The accident cases required the use of 50,500 beds, or 6.7 percent of the total beds.

Depending upon the criteria used in the measurements, we conclude that the treatment of accident cases accounted for 7 to 8 percent (6.7 to 8.1 percent) of the burden on the general and special hospitals of the United States. Presumably the burden on physicians came within the same range. The burden of accident

[1]The *Journal of the American Medical Association*, "Accident Burden on Hospitals" vol. 165, No. 7, pp. 846-847, October 19, 1957, published by the A.M.A., Chicago, Ill.

cases treated by physicians in the home and in the office will be estimated in a later bulletin in this series.

This and other studies in the series could not have been made without the splendid cooperation of the medical staffs, the administrators, and the medical record libraries of the responding hospitals. Since our previous studies have shown that the burden of another nondisease category, pregnancy, is approximately 18 percent of one total, we conclude that the treatment of disease in general and special hospitals of the United States is roughly three-fourths of the total burden.

Olfactory Impairment May Cause Death

Carbon Monoxide Poisoning.—In recent years there has been a progressive increase in the number of accidental deaths from carbon monoxide poisoning. Over 11% of deaths in the home are due to this cause, and 75% of these deaths occur in persons 60 years old. The increase is not due to increased use of gas, as many new homes are now provided with electric fixtures throughout. Chalke and Dewhurst attributed many of these deaths to an impaired sense of smell in older persons (*Brit. M. J.* 2:915, 1957). They devised an apparatus to detect the ability to smell coal gas in varying concentrations. It was found that about 30% of persons over the age of 65 could not recognize the smell of coal gas at a concentration below 50 parts per 10,000 of air, a lethal concentration if inhaled continuously. Of those older persons who can smell coal gas, 95% recognized 45 parts and 50% recognized 25 parts per 10,000 parts of air. On the other hand, 95% of persons under the age of 65 could recognize gas at a concentration of 45 parts, and 50% at a concentration of 8 to 10 parts per 10,000. Further tests showed that neither sex nor smoking had any effect on the threshold of recognition of coal gas. The large number of deaths from carbon monoxide poisoning in the elderly was attributed also to the leaving on of gas taps, or to gas leaks. It is hoped that an odorant that they can all detect will be found so that this may be added to coal gas to increase the threshold of recognition by smell. The use of odor as a danger signal for the accidental escape of unburnt gas is unreliable at present for older persons living alone. It is estimated that in Great Britain one million people over the age of 60 live alone, and that many of these risk carbon monoxide poisoning.—"Foreign Letters: United Kingdom," *the Journal of the American Medical Association,* vol. 165, No. 14, p. 1858-1859, Dec. 7, 1957, published by the A.M.A., Chicago, Ill.

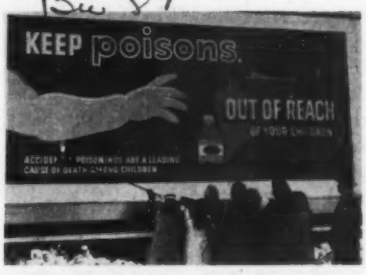
Fences Required for Swimming Pools

THE BACKYARD swimming pool, once a symbol of greatest luxury, has become so common that cities are passing laws to protect children from falling into them, the American Municipal Association has found.

Cities of the North as well as the South are requiring fences, usually at least 4 feet high with self-closing gates and self-latching devices. Among cities or counties with fencing ordinances are Olean, Valley Stream, Webster, and Farmingdale, N. Y.; Englewood, N. J.; Los Angeles, Pasadena, Fresno, Santa Barbara, Monterey Park, Sacramento, Pomona, and Glendale, Calif.; Orlando and Dade County, Fla., the association has reported.

The National Safety Council is interested in obtaining more information about this. Would you kindly send any information you may have about activities concerning legislation about private swimming pools and/or copies of ordinances to: Gordon O'Neill, senior engineer, Home Safety Division, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

A Billboard Campaign



Leona Baumgartner, M.D., Dept. of Health, New York, N. Y., "helps" some school children in the Bronx "put up" a billboard on poisons. (Photo by Bob Oliver of the Dept. of Health.)

A group of school children helped Leona Baumgartner, M. D., commissioner of the Department of Health, New York, N. Y., start a new phase of the department's campaign to prevent accidental poisoning of children. The youngsters and Dr. Baumgartner unveiled on January 16, 1958, in the Bronx the first of a large number of huge (25 by 12 feet) billboards which will be posted throughout the city.

The space on the billboards is being given to the Department of Health by the General Outdoor Advertising Co.

In announcing that the Department of Health is using billboards in its campaign to prevent accidental poisoning among children, Dr. Baumgartner said that the department's Poison Control Center handled 7,281 cases of accidental poisoning last year. Approximately 55 percent of the poisonings were among children.

To prevent such poisonings the Department of Health and its Poison Control Center have been carrying on an educational campaign aimed at parents. The basic theme of this campaign, which will be carried on the billboards, is to keep medicines and household preparations which are poisonous when misused out of the reach of children. The billboards are eight-color jobs which carry the legend: "Keep poisons out of reach of your children."

A.M.A. Drafts Law to Cut Down Deaths

AFTER A FIFTEEN MONTHS' study, the Committee on Toxicology of the American Medical Association announced (January 29, 1958, in New York, N. Y.) that it has formulated a broad and encompassing model law for the precautionary labeling of hazardous substances in commercial, household, and industrial chemical products.

Speaking before the Section on Food, Drug and Cosmetic Law of the New York Bar Association, Bernard E. Conley, Ph.D., secretary of the A.M.A. committee, said the proposed legislation is intended as a model for uniform laws to require declaration of hazardous ingredients and warning statements on the label and in the accompanying literature of chemical products used in the home and elsewhere.

"The proposed model law," Dr. Conley said, "was drafted after an exhaustive review of existing statutes revealed a hodgepodge of local regulations for the labeling of chemicals."

The law is directed against those hazardous substances defined as toxic, irritating, sensitizing, corrosive, flammable, explosive, or radioactive under customary or reasonably anticipated conditions of handling and use.

The law, as drafted by the A.M.A. committee headed by Torald Sollman, M.D., Cleveland, Ohio, would—

Require the labeling of all chemical products containing hazardous substances which are not now regulated.

Require that the same labeling standards would apply to chemicals for export as those for domestic consumption, thereby obviating the common complaint that less-than-standard products are sold to foreign customers.

Prohibit reuse of food and drug containers bearing their original labels.

Require identification and warnings for strongly sensitizing chemicals which cause allergic or inflammatory reactions in living tissue on contact.

Dr. Conley said a significant departure in drafting the new law was deletion of the word "poison" from the bill's provisions. This decision was reached, he said, after surveys showed a wide variation in existing legal limits for poison and a lack of agreement among scientists on a definition of the term.

"The A.M.A. committee," he said, "feels that reference standards for toxicity based on animal tests provide a more consistent and reliable index of the poisonous properties of chemicals."

The committee's work had strong support not only from the chemical industry but also from the National Drug Trade Conference and the American Public Health Association.

Dr. Conley told the bar association that inadequate labeling of potentially harmful chemicals has been a major handicap to a successful attack on the problem of accidental poisoning.

"Lack of information about hazardous ingredients in certain emergencies," he said, "may enhance the gravity by complicating or delaying treatment."

The A.M.A. official said the latest mortality statistics show that 1,431 persons died from accidental overexposure to packaged chemicals in 1955. "One-quarter of these fatal accidental poisonings by liquid and solid substances occurred in preschool age children and nearly 80 percent occurred in the home. Nonfatal poisonings are estimated to be 100 to 150 times the number of fatalities," he said, adding, "and these are impressive statistics for a cause of injury and death which is considered to be largely preventable."

Dr. Conley said that while tremendous strides have been made in recent years in reducing mortality from infectious diseases, no comparable improvements have occurred in the prevention of accidental poisonings.

While children are the most frequent victims, the fault of negligence does not necessarily rest at the doorstep of the parents, Dr. Conley added.

"Most of the children who take poison are active and curious," he said, "and most of the substances ingested by them are easily accessible. Even the parents failed to realize that a number of common household substances were poisonous until after the accident occurred. The model law will help parents become more aware of the hazards and thereby reduce fatalities."

INDIANA LAW WILL AID POISON VICTIMS

By Dale Harman

Consultant
Health and Safety Education
Indiana State Board of Health
Indianapolis, Ind.

A NUMBER OF Hoosier children each year are victims of poisoning as a result of ingestion of a household product containing poison. In an effort to reduce the number of deaths due to accidents of this kind, the 1957 Indiana General Assembly enacted into law a bill providing for the registration of all household products containing poisons. Responsibility for maintaining the registry was delegated to the Indiana State Board of Health, and the mechanics for establishing and maintaining the registry were put into operation, prior to the date the law became effective, January 1, 1958.

Physicians, health officials, and manufacturers of household products believe that the new law will aid physicians and, in turn, aid individuals who have swallowed or ingested products containing poison. Many of the products which today find their way into homes, and which are used for bleaching, polishing furniture, washing clothes, or cleaning the sink, contain ingredients which would prove harmful if consumed by humans.

Small children are frequently victims of poisoning, and in such cases it is imperative for the physician to know what material has caused the child to be ill. With the new legislation, it will be possible for the physician to telephone the State Board of Health and, within a mat-

ter of a few minutes, have information on the type and quantity of the poisonous ingredient. He is then in a position to prescribe the antidote necessary.

From January 1, 1958, and thereafter, manufacturers will be required to record, on forms provided by the Board of Health, each of the products they manufacture which are considered to be "household products containing poisons." When the forms are received by the official state health agency, a registration number will be assigned to each product. Forms completed by the manufacturer will contain the following information: trade name of the product, name and address of the manufacturer, a list of the ingredients, and the percentage of any ingredient therein which is a poison.

The law also requires the manufacturer to carry on the label, in a prominent place, the chemical name of each poisonous ingredient. Further provision is made for registration of a product should its chemical formula, trade name, or name of manufacturer be changed after the original registration.

According to A. C. Offutt, M.D., state health commissioner, the program will be administered by the Division of Food and Drugs, Indiana State Board of Health. Dr. Offutt pointed out that future plans include the preparation of a poison manual for physicians which will contain a list of all household products containing poisons and the antidote for same should such products be eaten or swallowed. These manuals would be placed in the hands of all Indiana physicians, enabling them to have a quick and ready reference on the subject.

Dr. Offutt asserted, "We feel that recent legislation will aid physicians in their task of saving lives. However, parents and others responsible for the health and well being of small children should take the necessary steps to prevent children from having access to products which can be harmful to them." This is a responsibility that must not be shirked. Prevention of poisoning of children depends upon the constant alertness of adults.

Materials, Catalogs

Dangers in the Kitchen, profusely illustrated cartoon style, describes methods of preventing accidents in the kitchen. The booklet is divided into sections (on the preparation and mixing area, the cooking area, and the storage area and on poisons in the kitchen) in which such specifics as the use of knives and other cutting implements, prevention of fire, etc., are discussed. There are also a section on children and safety, a checklist, and a space for emergency phone numbers.

How to Survive the Holidays, also profusely illustrated cartoon style, presents tips on safety concerning the Christmas tree, holiday driving, entertaining and cooking during the holidays, and safety in connection with toys. Gift wrapping cleanup is also brought into the picture.

Each booklet is 16 pages, two-color, about 5 by 7 inches. For further information write: American Visuals Corp., 460 Fourth Ave., New York 16, N. Y.

Home Safety Activities in Health Departments has been reprinted from the January 1958 *Home Safety Review* in which it appeared as an article entitled "Health Departments Participate." This 6-page, 8½- by 11-inch folder describes the activities of health departments as reported in the 1956 Home Safety Inventory. It is available free from the National Safety Council.

1957 Current Safety Topics: Home Safety, vol. 13, is the Transactions of the Home Safety Sessions of the 45th National Safety Congress held in Chicago, Ill., October 21-25, 1957. This volume contains talks on such subjects as off-the-job safety, the need for research in home accident prevention, fire prevention, and participation by health and medical organizations in the home safety program. It is available at the following prices from the National Safety Council (stock No. 022.27-13): 1 to 9 copies, $.60 each; 10 to 99 copies, $.50; 100 or more copies, $.45.

A new edition of *Occupational Saftey Posters* which lists, with an illustration of each poster, current posters available from the National Safety Council may be purchased for $.60 each (stock No. 198.10).

The *National Safety Council Catalog of Public Safety Materials* which describes general safety materials and traffic, home, school and college, and farm safety materials is available on request from the National Safety Council.

The following *Safety Education Data Sheets* on subjects of particular interest in a home safety program have been published within the last year or so by the School and College Division, N.S.C.

Safety Education Data Sheet No. 78: Safety for Amateur Electricians concerns repair of electrical equipment at home. Specific safety reminders on such electrical work as replacement of a blown fuse, of a defective switch or outlet, and repairing cords and appliances are given. The data sheet (six pages) also discusses additional house wiring, safety for women, and so forth. This is available from the National Safety Council for the following prices (stock No. 429.04-78): 1-9 copies, $.10 each; 10-99, $.058; 100 or more, $.046.

Safety Education Data Sheet No. 86: Cigarette Fire Hazards (three pages) discusses fire prevention from cigarette hazards with particular emphasis on such subjects as smoking in bed, the process by which ignition of materials from cigarettes starts, and preventive measures.

This is available from the National Safety Council for the following prices (stock No. 429.04-86): 1-9 copies, $.10 each; 10-99, $.058; 100-999, $.046; 1,000-4,999, $.043.

All prices for National Safety Council materials are subject to a 10 percent discount to National Safety Council members, schools, colleges, and public libraries.

AN ERROR

In an article "Erie County Covers the Ground" in the January 1958 issue of the *Home Safety Review* the location of the county was erroneously reported by your editor. It should have been Erie County, N.Y., not Erie County, Pa.

FALL HAZARDS CAN THROW YOU

VOICE: "So Help Me. It's the Truth!"

ANNOUNCER: Station ——— and the Ohio State Safety Council present "So Help Me * * * *" a 5-minute program featuring the Voice of Safety as he tells us some of the freak squeaks, the crazy goings-on as your fellow citizens got themselves involved in accidents. This evening, for instance, the Voice of Safety tells us of a rug that won the person-throwing championship!

VOICE: "So Help Me. It's the Truth!"

My wife and I have often differed regarding the correct term for the small rugs that are used here and there in many homes. She calls them "scatter" rugs since they are scattered about the rooms. I have called them "throw" rugs because they have a tendency to throw the unwary person for a loop.

A recent news item uses my term but in connection with a most unusual accident. Mrs. Frieda Scott was shaking a "throw" rug—that's what the story said, a throw rug—from the second story porch of the Scott home in East Cleveland. She plunged over the porch rail when her foot slipped in the snow on the porch deck. No other rug can claim to have thrown a lady 15 feet!

So many of us do not realize how much we must depend on sound, firm footing. Without it, we are practically helpless. Six out of 10 home accidents are falls. Many falls come from an unnoticed condition that makes our footing unstable.

THIS SCRIPT was produced in 1954 by the WGAR Broadcasting Company, Cleveland, Ohio, and the Ohio State Safety Council, Columbus, Ohio. H. G. J. Hays, executive secretary, Ohio State Safety Council, has stated that this is one of a series of scripts the anecdotes for which were derived from a number of sources, among them newspapers and the annual Freak Squeak story of the National Safety Council. Occasionally someone sends an anecdote to him.

Rain, snow, mud—why just recently our favorite baker stepped on a piece of cellophane, fell, and cracked four ribs! We just cannot be too careful about keeping floors, walks, steps, clear of *anything* that will cause a slip.

During the next few months the news will be full of stories about falls. Wet walking surfaces or wet footgear will contribute to many of these tumbles.

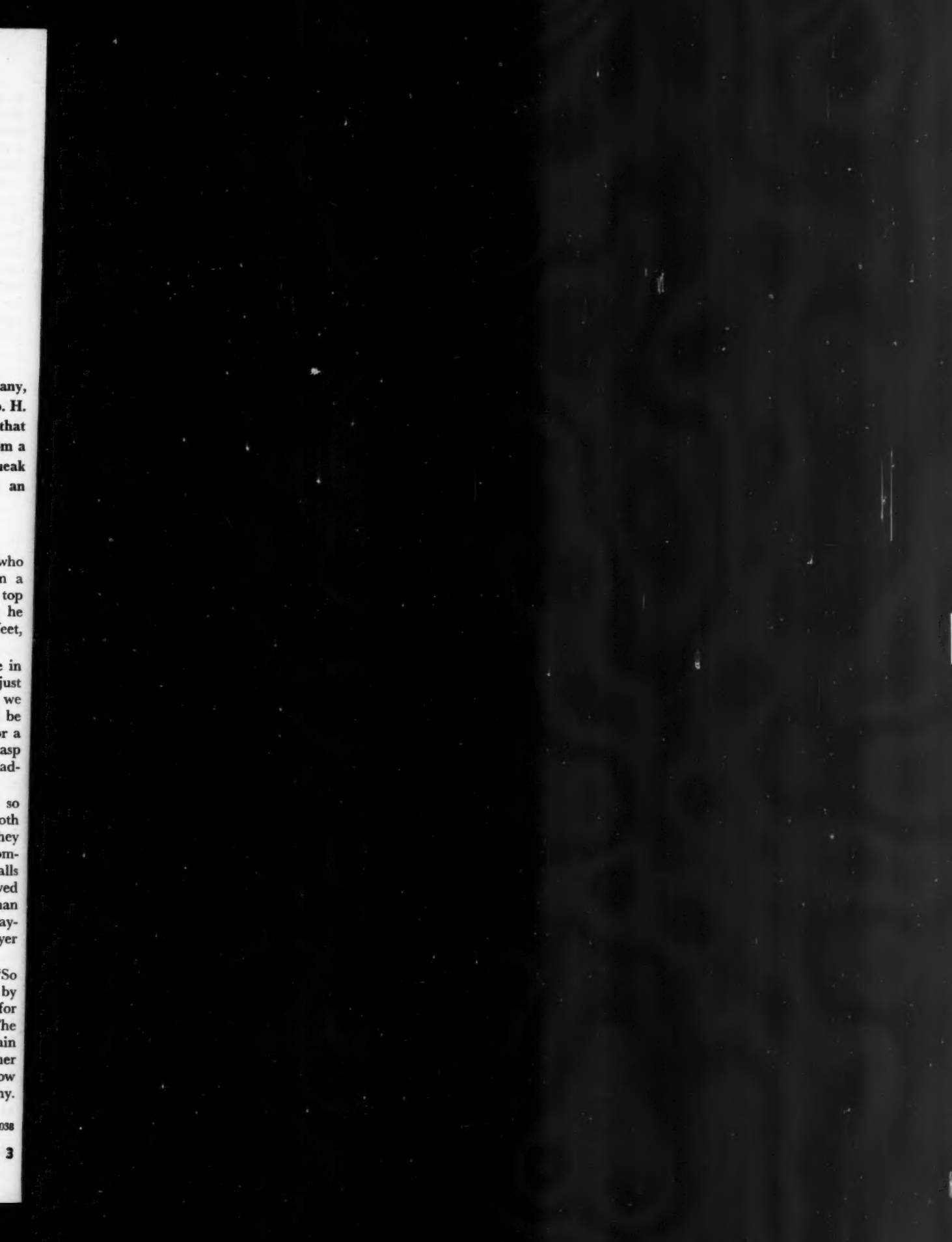
Have you noticed that long, rubber mats are just inside the entrances of many buildings. Possibly you thought the mat was a protection to keep the floor from being tracked up by wet shoes.

Actually the mat is there to protect you and others from slipping when your wet heels make contact with the smooth floor. Better walk cautiously when surfaces are wet; your shoes, like auto tires, lose traction on wet surfaces.

Most of the falls occur on the level, but the serious injuries come from falls from one level to another. There is some truth in the old vaudeville gag that said, "The fall didn't hurt, but that sudden stop put me in the hospital." A year or so ago, we told of a Frenchman who fell three stories and landed on a mattress which was going by on top of a car. He was unhurt, but he slipped off the mattress, fell 5 feet, and broke an ankle.

There wouldn't be much sense in having mattresses lying around just in case people might fall. All we can do is watch our footing and be sure it is firm. When on stairs or a ladder, keep one hand free to grasp the stair rail or the side of the ladder to keep your balance.

Those who live in town are so used to walking on fairly smooth pavements and sidewalks that they get into difficulty when those comforts are absent. Many outdoor falls would be avoided if we followed the warning of the park policeman who kept folks off the grass by saying, "Be careful where you putt yer futt."

You have been listening to "So Help Me * * * *" presented by ——— each ——— at this time for the Ohio State Safety Council. The Voice of Safety will be back again next week with the story of another freak accident and some tips on how you and I can stay alive and healthy. "So Help me; It's the Truth!"

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